경영학박사 학위논문

Essays in Corporate Finance

기업재무에 관한 연구

2020년 8월

서울대학교 대학원

경영학과 경영학 전공

임 지 은

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지도교수 김 우 진

이 논문을 경영학 박사 학위논문으로 제출함

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Abstract

Essays in Corporate Finance

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This thesis consists of Essays in corporate finance: the supply chain and ownership structure, the effect of bribes on firm performance, and resale or retirement of repurchased shares. The first essay investigates the impact of the supply chain on the inter-corporate ownership structure among member firms within business groups. Previous literature suggests that profitable firms directly owned by the controlling shareholders are at the top of the pyramidal structure. However, profitability may be endogenously determined based on related party transactions. Specifically, suppliers within the business group may generate higher profits through exclusive sales contracts with member firms. Based on a sample of large business groups in Korea, I find that suppliers are more likely to be located in the upper part of the pyramid. This result is more prominent in the relatively smaller groups (less than 10 trillion KRW in total assets), but it disappears in the top five business groups. This suggests that the incentive of controlling shareholders to expropriate corporate opportunity may be an important factor in structuring business groups.

The second essay examines how bribes may affect corporate performance using a quasi-natural experiment. Specifically, we exploit the 2016 enactment of the Improper Solicitation and Graft Act in Korea which limits provision of gifts and entertainment to public sector employees as an exogenous shock to bribery practices. We find that a firm's level of bribery activities, instrumented by industry-level government exposure, has a negative impact on its performance. In particular, a

reduction in predicted bribery activity results in a significant improvement in operating performance. Overall, our findings provide convincing evidence that bribery impairs firm value.

The third essay reviews the regulatory background on resale of treasury shares in various countries and empirically examines how Korean publicly traded firms decide to resale or retire existing treasury shares. Previous studies on treasury shares mostly focus on repurchase activities. There is almost no empirical study on the decision to resell or retire treasury shares that have already been repurchased. We find that Korean firms tend to resell most of the treasury shares that have been repurchased rather than retiring them. Our main regression analysis after controlling for various factors indicates that firms with good corporate governance tend to retire treasury shares more than firms with bad governance. To the contrary, we find a negative relationship between governance level and the magnitude of resold treasury shares, especially when the amount being sold accounts for more than 10% of the issued shares. These findings suggest that treasury shares held through repurchases may be utilized as an anti-takeover mechanism to protect the incumbent controlling shareholders from potential takeover threats, rather than as a form of payout policy. Our findings provide empirical support for the recent regulatory initiative in Korea to treat resale of treasury shares in a similar manner as new share issues in order to protect minority shareholders.

Keyword **: Supply chain, Ownership structure, Bribes, Anti-graft law, Firm performance, Treasury shares**
Student Number **:** 2014-30175

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Chapter 1.

Does the supply chain matter in the ownership structure?
Evidence from Korean business groups

1. Introduction

Several studies in corporate finance worldwide, have revealed significant cross-sectional variations in ownership structures. According to Kim (2013), in countries other than the United States (US) and the United Kingdom (UK), the ownership structure of a business group is spread worldwide, where the business group represents the form in which firms belong to the group, and their equity structure is intertwined. How a firm is owned and controlled is a key variable of interest in economic research both as independent and dependent variables. Ownership structure affects corporate performance and economic development, which, in turn, are influenced by the socioeconomic, legal, and financial market environment.

There are several views on how the ownership structure is formed. In the early stages of research, most studies focus on the impact of ownership structure on corporate performance or decision-making (Bertrand et al., 2002; Claessens et al., 2002; Joh, 2003). Additionally, literature indicates that the ownership structure is regarded as endogenous (Almeida et al., 2011; Masulis et al., 2011). They argue that controlling shareholders select the ownership structure for several reasons. Particularly, Almeida et al. (2011) suggest the selection hypothesis to explain the formation of business groups. It hypothesizes that profitable firms are selected to be owned directly by controlling shareholders (the upper part of the pyramid). However, firms with low profitability are selected to be owned through affiliates in the business group (lower part of the pyramid) rather than directly.

This paper argues that this selection hypothesis may have overlooked essential factors. The high profitability of the firms at the top of the pyramid may be endogenously determined based on the business model or strategy, such as related party transactions. The firm's profitability may not be fundamentally high but may appear high. The firm's high profitability may not be because of its superior operational capabilities, but because of the supply chain, specifically as an exclusive supplier within its business group. Suppliers within the business group may generate

higher profits through exclusive sales contracts with member firms. The firm at the top in the pyramid may not be profitable unless it is a monopoly supplier to affiliates in the group.

Thus, this study presents a new industrial organizational approach, where the supply chain within the business group investigates whether it has a vital role in the inter-corporate ownership structure. According to results, the controlling shareholder places the supplier higher on the pyramid than the customer. This indicates that high profitability may be induced by a position where profits are concentrated in the structure of the supply chain. Therefore, it also implies that the ownership structure can be formed as an incentive of expropriating corporate opportunity.

Korean large-scale business group data are used to test the above hypothesis empirically. The Korean Fair Trade Commission (KFTC) officially announces the detailed transactions and ownership data of all affiliated firms (public and private) in the large business group. Using this novel data from 2009 to 2016, I construct variables for the supply chain and a position in the pyramid structure. First, the supply chain is identified through the transaction matrix between affiliates in a business group. Using this transaction dataset, for each firm in the business group, I construct variables that are the ratio of sales and purchases between affiliates to its total revenue, respectively. According to a threshold in these variables, the supplier or customer is assigned to firms within the business group. Second, based on Almeida et al. (2011), I calculate a position in the pyramid, a particular type of ownership structure in a business group, that measures the distance between the controlling shareholder and its affiliates. The variable position quantifies where the firm is located within the pyramid.

The univariate analysis is first conducted to show the statistical difference between the supplier and the customer overall. The supplier shows higher ultimate ownership and lower value of the position than the customer. Since a firm with a small position value means that it is close to controlling shareholders, on average, it implies that the controlling shareholders own the supplier more directly than the

customer in the business group. Next, the association between the supply chain and the ownership structure is investigated. I find evidence that controlling shareholders tend to place the supplier above the customer in the pyramid. This finding implies that the high profitability of firms at the top of the pyramid is endogenous, and the key is the supply chain because the suppliers can generate high profits through exclusive sales contracts with member firms.

In addition to the primary analysis, a sub-sample test dividing the whole sample into three sub-groups based on the total assets of affiliates within the groups is conducted. According to the enforcement decree of KFTC, which raises the criteria for designating large-scale business groups from five trillion to ten trillion KRW, 10 trillion KRW can be a threshold to define whether a group is large enough to require stronger regulation. According to the results conditional on group size, the supply chain effect is more prominent. Still, profitability loses the explanatory power in the relatively smaller group (less than 10 trillion KRW in total assets). In contrast, the supply chain effect disappears, and profitability remains in the top five business groups.

This result questions the selection hypothesis proposed by Almeida et al. (2011). In their study, the firms with high financial constraints (low-profitable firms) are located at the bottom of the pyramid because they have difficulty in external financing. Therefore, controlling shareholders do not own them directly, but do so through their subsidiaries to ease financial constraints. According to this explanation, the smaller sized groups which are more likely to have higher financial constraints than the larger groups should show a more pronounced selection effect. However, in my sub-sample test, the profitability effect does not appear in a small group, but the supply chain effect is strong. However, in the larger groups, the profitability effect appears, but the supply chain effect does not, which is inconsistent with the selection hypothesis. It implies that the position within the group can be formed by expropriation of corporate opportunity, that is, incentives for tunneling in the relatively small-sized business group (less than 10 trillion KRW in total assets). The

suppliers that have taken the opportunity also grow along with the group, and the actual profitability is realized. Accordingly, both the supply chain and profitability account for the position simultaneously in the business group, with the total assets exceeding 10 trillion KRW, excluding the top five groups. However, since the suppliers within the group have already grown expropriating corporate opportunity, they will no longer exist as suppliers in the group in the top five groups. Therefore, the Top five groups present that the profitability variable rather than the supply chain explains position in the group, which can be evidence of the formation of a dynamic business group.

Moreover, as there is a possibility that cross-sectional compounders or omitted variable concerns may exist, an additional analysis is conducted to address the endogeneity problem. I identify the firm that switches to a supplier in the full sample to investigate how the firm that changes its status in the supply chain affects position changes. The firm that switches to a supplier has a statistically significant impact on the decrease in position but not increase in position. There is no statistical difference in the firm characteristics between supplier and others one year before changing to the supplier. This dismisses the possible claim that the firm switched to a supplier may have endogenously changed the status of the supply chain due to the nature of a certain firm,

As the results suggest that high profitability may be induced by a position where profits are concentrated in the structure of the supply chain within the business group, additional analysis is conducted to show the association between the supply chain and profit as well as cost. Therefore, it is found that suppliers are more profitable and spend less than customers within the business group. Additionally, each of the suppliers with customers is compared with a matched sample of externally audited firms outside the business group based on size, year, and industry. Therefore, the supplier in the business group presents significantly higher profit volume and profit margin as well as lower SG&A and advertising cost than the matched sample. However, the customer in the business group shows lower profit margins, but profit

volume and cost lose their statistical significance. This suggests that the effect of the supply chain is asymmetric and that the supplier is more influential than the customer.

This paper contributes to two strands of literature: supply chain and ownership structure. It provides a new explanation for the overlooked point of the ownership structure in the previous literature. The study attempts to explain the ownership structure using the supply chain, which was previously studied in operations management. More recently, research about supply chain or supplier and customer relationship has spurred in finance. While studies related to asset pricing or financial decision are active, the link between ownership structure and supply chain has not been analyzed. Thus, this undiscovered link connecting ownership structure with industrial organization literature is highlighted in this paper.

This paper is organized as follows. Section 2 discusses the hypothesis development and background. Section 3 describes the data and explains the various measures used in this study. Section 4 presents our main findings and discusses additional robustness tests providing the research design. Section 5 concludes the paper.

2. Hypothesis development and background

2.1. The formation of ownership structure in business group

Previous studies focus on the consequences of a company's ownership structure. The mainstream research links the ownership structure with corporate financial performance. The papers in the early stage use the concept of cash-flow right, control right, or a wedge, which indicates the difference between control rights and cash-flow rights as a proxy for ownership structure and claim that those affect the performance and valuation of group member firms. Bertrand et al. (2002) argue that a firm with high cash flow right shows a higher firm value than that with lower cash flow right. This is because the firm value increases by shifting its resources from the firm with a low cash flow right to the firm with high cash flow right. Claessens et al.

(2002) insist that aside from cash flow right, the difference between control right and cash flow right, wedge, should be considered. In their results, there is a negative relationship between the wedge and firm value. Likewise, Joh (2003) shows the negative relation between wedge and profitability in Korea.

Subsequent studies focus on how the ownership structure is determined. Almeida et al. (2011) argue that the ownership structure is not an exogenous one, as assumed in previous studies. Still, it reflects the intention of controlling shareholders who establish the structure on a specific basis. In other words, controlling shareholders build the pyramid according to various firm characteristics, and the critical factor which they suggest is profitability. The pyramid structure is formed by placing low profitable firms below and large profitable firms above in the pyramid. Low profitability indicates a smaller amount of pledgeable income, suggesting that raising external capital may be difficult. Thus, the controlling shareholder seeks to use the internal capital of other group members to finance investment in the newly added firm. With this mechanism, the controlling shareholder wants to exploit the internal funds of other affiliates by owning the less profitable firm through their affiliates instead of directly owning them. In contrast, a highly profitable firm may use its internal capital, and if necessary, it is relatively easy to finance externally using its collateral income. This investment motive hypothesis is further investigated by Masulis et al. (2011). Using more extensive data than Almeida et al. (2011), they propose the benefits of internal funding within the pyramid, arguing that the pyramid is a useful structure in maintaining control and easing funding constraints.

I present a new explanation for the hypotheses in this paper, different from the existing ones. Including the supplier and customer relationship from an industrial organization's perspective presents interesting findings. Rather than merely high and low profitability, the ownership structure may be affected by the supply chain within the business group. The supplier within the group generates revenue by delivering raw or intermediate goods to its affiliates. It has reliable customers and does not need to promote to get business opportunities. Therefore, the decision about how to take

corporate opportunity rather than the profitability channel presented previously also affects the ownership structure. In other words, the ownership structure can be formed as an incentive of expropriating corporate opportunity. The central hypothesis presented in this paper is as follows.

Hypothesis: The controlling shareholder places the supplier above the pyramid rather than the customer.

The findings of Almeida et al. (2011) may have potentially overlooked certain essential details. Accordingly, the firm with high profitability is at the top of the pyramid, and the lower one is at the bottom. However, the firm's profitability may not be fundamentally high, but it may appear high. The firm's high profitability is not because of its superior operational capabilities, but because it is an exclusive supplier within its business group. In other words, the firm at the top of the pyramid may not be able to generate profitability unless it is a monopoly supplier to affiliates in the group. Sales generated within the business group may result in high profitability.

Additionally, Almeida et al. (2011) argue that the reason why firms with high financial constraints (low-profitable firms) are located at the bottom of the pyramid is that these firms have difficulty in accessing external financing. Based on this selection hypothesis, the smaller sized groups which are more likely to have higher financial constraints than the larger groups should show a more pronounced selection effect. However, in my analysis, the selection effect does not appear in a small group, but the supply chain effect is strong.

Almeida et al. (2011) argue that the formation of pyramid structures is not intended for tunneling, but the controlling shareholder selects it. In contrast, this study proposes that it is a selection for tunneling, and the controlling shareholders choose to place the supplier at the top of the pyramid to enjoy high profitability by monopolizing their affiliates through exclusive sales contracts within the business group. Therefore, the results of Almeida et al. (2011) can be driven by the tunneling outcomes and the industrial organization-based channel, the supply chain, which is

more important in explaining the ownership structure in the business group.

2.2. Vertical integration and supply chain

In all manufacturing industries, one of the critical corporate decisions that must be made during operation is 'make or buy.' When a company makes and sells a product, the manager decides whether to make intermediary goods or purchase them from the outside. Specifically, the company may (1) establish a factory to operate the production department internally (manufacturing department or assembly division), (2) have contracts with subcontractors, and (3) set up an affiliated firm in charge of production and purchase intermediates from the affiliate. The case (1) stands for 'make,' (2) means 'buy,' and (3) refers to the type of 'buy,' not from outside, but from other affiliates in the business group, which is commonly referred to as vertical integration. Cases (1) and (2) are not discussed because they deviate from the content of this paper.

In case (2), however, various issues can be discussed, which are addressed by Kim et al. (2020). From the controlling shareholders' perspectives, the supplier from outside (case 2) and supplier within the business group (case 3) is different. For transactions with a subcontractor, such as case (2), formal equity ownership issue is not intertwined. Still, according to Kim et al. (2020), the customer exploits the subcontractor exercising their control beyond the ownership. In contrast, if purchased from affiliates within the group, such as case (3), suppliers and customers rely on the ownership of controlling shareholders. Therefore, agency problems may exist. My paper deals with case (3), creating an affiliated firm in charge of producing intermediate or final goods, and constructing a vertically integrated structure. For example, comparing Samsung Electronics with Apple, while Apple outsources display panels, batteries, and mobile processors Samsung Electronics is supplied by affiliates such as display panels from Samsung Display, batteries from Samsung SDI, and mobile processors from division in Samsung Electronics. There is a big

difference in the sourcing policy of the two companies. Apple was the first company to make an iPhone, the world's first successful smartphone, but Samsung has the edge in manufacturing competitiveness. Samsung is rapidly pursuing Apple's iPhone, and some indicators, such as sales, have already outpaced Apple.

As the example of Samsung Electronics and Apple shows, vertical integration is one of the competitive strategies that give a firm complete control over one or more stages in the production networks. A firm owns both the value chains between its upstream supplier and downstream buyers in a vertically integrated structure. With this structure, a firm can achieve a competitive advantage through price differentiation or non-price differentiation. The vertical integration makes it easier to secure confidentiality related to trade secrets, priorities in production and sales, and internally accumulate relevant know-how compared to non-vertically integrated groups. Besides, firms can reduce transaction costs, enabling efficient business processing.

There are types of vertical integration strategies. For example, an automobile company creates (or acquires) firm A that produces auto parts (backward integration), firm B that handles the logistics of completed cars, and firm C that is in charge of sales and after-sales services for cars (forward integration). One of the representative examples of backward integration is that General Motors (GM) acquired Fisher Body, a company that makes automobile bodies to solve the hold-up problem. However, there is a difference between the US and Korea in this vertical integration. In this example, in the US, when GM acquired Fisher Body and vertically integrated, GM obtained 60 percent of the Fisher Body in 1919 and bought the remaining 40 percent in 1926. Since Fisher Body was incorporated into the GM assembly division in 1984, it no longer exists as a GM division.

Generally, in the US, it is common to own 100% of subsidiaries not only in vertical integration but also in general M&A cases, whereas in Korea, the parent company rarely takes 100% of its affiliates, which causes various agency problems. Seoyoung E&T that produces a variety of equipment for extracting draft beer and

operation of beer such as draft beer cooler (raw emitter) and Hite Industry that supplies packaging glass containers are defined as suppliers in the group. These companies are owned by controlling shareholders with 100% and 60% shares, respectively. However, Hite Jinro, High Scott, Jinro Soju, and Hite Jinro beverage are defined as customers in the group, which are owned by controlling shareholders with about 30% shares. Therefore, this suggests that there is a possibility of agency problems arising from differences in ownership of each affiliate if vertical integration occurs within a business group.

--- Insert Figure 1 ---

2.3. Supply chain in finance

Although research on the supply chain has been conducted in operations management, it also has been spurred in finance. The initial studies try to connect product networks and asset prices, which focus on the predictability of stock returns through supplier-customer links (Cohen and Frazzini (2008); Menzly and Ozbas 2010) or across different production layers (Gofman et al. 2018). Besides, there is a growing literature about the supplier-consumer relationship related to corporate finance. Socially responsible corporate customers can apply similar socially responsible business behavior to their suppliers (Dai et al. 2019). There is a spillover effect of the initial public offering (IPO) along supply chains (Kutsuna et al. 2016); Bae et al. 2019). However, there is a lack of research connecting the supply chain with the ownership structure. Therefore, this study attempts to fill the research gap.

3. Data

3.1. Data Source and Sample Selection

This section describes the data sources and variables used for the empirical

analysis. The sample period ranges from 2009 to 2016 since related party transaction data within the business group required to create the supply chain became publicly available due to the introduction of the business group disclosure system of the Korean Fair Trade Commission (KFTC) in 2009. The transaction matrix between affiliates within a business group is collected from the Data Analysis, Retrieval and Transfer System (DART), which is managed by the Financial Supervisory Service (FSS), to construct the main and control variables. Ownership data is obtained from eGroup, a database of extensive business group information disclosure systems managed by KFTC. The annual financial data from the Dataguide provided by Fn-guide is used.

3.2. Variable Construction

This section explains the construction of each variable used in the analysis. Table 1 briefly summarizes the definition of the variables.

3.2.1. Supply chain

The supply chain is identified through the transaction matrix between affiliates in a business group. Most of the existing research on related party transactions are analyzed by obtaining data from TS2000, which serves only transactions between listed and unlisted companies. Transactions between unlisted companies are not provided. However, my hand-collected data includes all transactions between all affiliates, public and private firms. Moreover, a critical feature of this data source is that it collects information on how much firms buy and sell between all affiliates in the business group from the Fair Trade Commission Disclosure. This large-scale group-level database on the transaction between affiliates allows me to construct the supply chain variables within business groups and to assign suppliers or customers for the firm in the business group based on the ratio of sales and purchases between affiliates to its total sales. The supply chain variables, supplier, and customer are

defined based on two criteria.

A. BS (Buy & Sell between affiliates)

According to the (Buy and Sell between affiliates) BS criterion, supplier (BLSM) is identified as a firm that buys from affiliates less than median and sells to affiliates more than median. The customer (BMSL) is identified as a firm that buys from affiliates more than median and sells to affiliates less than median within the business groups. Moreover, Supplier (BS) is an indicator variable that takes a value of 1 if a firm is identified as a supplier (BLSM), and 0 if a firm is identified as Customer (BMSL). The advantage of the supplier (BLSM) and customer (BMSL) is that the whole sample can be used. However, using a supplier (BS) has the disadvantage of reducing the number of samples in half, while having the advantage of providing a supplier effect over the customer.

B. NS (Netsell between affiliates)

A netsell variable is created by subtracting purchases from the sales between affiliates. Within a business group, the firm is defined as a supplier (NS) if the netshell variable is higher than the median; otherwise, it is defined as a customer. The supplier (NS>0) which indicates a firm whose netsell variable is greater than zero, is added for the robustness check.

The variables based on two criteria have similar meanings but differ such that the BS is a more rigorous measure that separates purchases from and sales to affiliates. However, NS includes the concept of the aggregated part compared to BS, which does not clearly distinguish between buying and selling, respectively, because it subtracts purchases from sales between affiliates.

3.2.2. Ownership structure

The methodology of computing ownership structure variables, ultimate ownership, and position, is based on Almeida et al. (2011). Their paper can be referred, on how to build the variables in detail. I briefly explain the variables.

A. Ultimate ownership (cash flow rights)

Business groups are controlled by families (controlling shareholders) who hold stakes in the group affiliates directly or indirectly through other affiliates in the group. Thus, the ultimate ownership, referring to the cash flow rights of the controlling shareholders, is defined as the sum of indirect holdings through their affiliates in addition to direct holdings.

--- Insert Figure 2 ---

B. Position

The position is a variable that represents the location of each firm within the pyramid structure. If the controlling shareholder builds a business group using the pyramid structure, there is a firm directly owned by the controlling shareholder (firm A), and another firm indirectly owned through other affiliates (firm B), as shown in figure 2 above. Since the controlling shareholder directly owns firm A, it is the first layer of the pyramid. Firm B is the second layer because it is owned through firm A. However, as the direct ownership of the controlling shareholder in firm B exists, the position is determined by the weighted average of direct and indirect ownership as follows.

$$Position_A = \frac{0.4}{0.4} \times 1 = 1 \quad (1)$$

$$Position_B = \frac{0.1}{0.3} \times 1 + \frac{0.2}{0.3} \times 2 = 1.7 \quad (2)$$

In short, position implies a kind of layer that adjusts direct and indirect ownership of controlling shareholders.

3.2.3. Other Variables

Following the existing literature on ownership structure in business groups, I control for firm characteristics that may affect a firm's ownership structure. All

variables are computed for firm i over its fiscal year t. The control variables include (1) firm size (Size) measured by the natural logarithm of the total asset; (2) firm age (Age) is measured by the number of years since the company's establishment, and this measure is logged; (3) public company (List) equals the value of one if the company is listed (either in KSE or KOSDAQ); 0 otherwise; (4) leverage (Lev) is measured by the ratio of book value of total debt to total assets; (5) profitability (Ebit/assets) is measured by the ratio of operating income to total assets; (6) profit margin (Ebit/sales) is measured by ratio of operating income to sales, and (Ebitda/sales) is measured by ratio of operating income before depreciation and amortization to sales; (7) profit volume (signed Ln(ebit), signed Ln(ebitda)) is measured by taking the logarithm of the absolute value of ebit or ebitda and assigns them the original sign; (8) cost variables, (Cogs/sales) is the ratio of cost of goods sold to sales, (Sga/sales) is the ratio of selling, general and administrative expenses to sales, and (Ad_promo/sales) is the ratio of advertising and promotional cost to sales.

--- Insert Table 1 ---

3.3. Descriptive summary

Table 2 presents the summary statistics of critical variables for firm-year observation. All continuous variables are winsorized at the top and bottom 1% of each variable’s distribution to minimize the impact of outliers. Related party transactions within the business group are measured with RPT, RP_sell, RP_buy, and RP_netsell to identify the supplier and customer. The mean value of supply chain based on BS criterion, supplier (BLSM), and customer (BMSL), are 0.246 and 0.248, respectively. It means that by definition of the supplier (customer), on average, 24.6% (24.8%) is allocated to the supplier (customer). Moreover, the supplier (NS) and (NS>0) are 0.485 and 0.537, respectively. The numerical difference between the two

criterion BS and NS is owing to their definition described in section 3.2.1.

The controlling shareholders ultimately own 28.50% of the shares in the affiliates across all firm-years in my sample. The mean (median) position of a firm is 2.394 (2.261), and the 75th percentile of the position variable is 3.000, which indicates that the pyramid structure has, on an average, more than two layers and about 25% of firms are more than three layers away from the controlling shareholders in the pyramid.

--- Insert Table 2 ---

4. Empirical results

This section shows univariate and multivariate analysis to show whether the supply chain plays a vital role in the ownership structure.

4.1 Univariate results

Table 3 shows the statistical differences in key variables between supplier and customer. Panel A is the result of the BS criterion, and Panel B is the result of the NS criterion. As mentioned in section 3.2.1, BS is a variable measured in a more rigorous method than NS. Thus, the magnitude of the difference resulted from the BS criterion is higher than that of the NS criterion.

--- Insert Table 3 ---

As the results of the two panels show similar patterns, the results are described based on panel A and panel B is considered for a robustness check. The supplier shows higher ultimate ownership and lower value of the position than the customer. Controlling shareholders own the supplier more than the customer and place the

supplier in an upper position in the pyramid within their business group. Moreover, the supplier has less proportion of being listed and smaller in size than the customer. A higher proportion of a privately held company of the supplier can result in a smaller size.

4.2 The supply chain and ownership structure

Table 4 provides estimates of how the supply chain is associated with the ownership structure. According to Almeida et al. (2011), who propose the selection hypothesis, the less profitable firm is more likely to be selected and placed in the lower pyramid by the controlling shareholder. In this section, the previous findings based on the empirical model by Almeida et al. (2011) are replicated, and the results for interpreting this phenomenon from a different perspective are presented. I measure position following their methodology and control for size, age, listed status, and leverage. I use operating income scaled by assets to measure profitability. Additionally, I include year and industry fixed effects, where the industry classification corresponds to a two-digit Korea standard industry code (KSIC). I also control for business group fixed effects to exploits within-group variation, as position and ultimate ownership are representative corporate decisions made at the group level in South Korea. The standard errors are clustered at the firm level.

$$Position_{i,t} = \alpha \cdot \ profitability_{i,t-1} + \beta \cdot supplier_{i,t} + \boldsymbol{Controls_{i,t-1}} + \sum_t year_t + \sum_k industry_k + \ \sum_j group_j + \varepsilon_{i,t}. \quad (3)$$

--- Insert Table 4 ---

Column 1 indicates that α in Eq. (3) is significantly negative, which supports the selection hypothesis (Almeida et al., 2011). However, columns 2 to 6 show an additional perspective to interpret the same phenomenon proposed by Almeida et al.

(2011). Controlling for profitability (Ebit/assets), columns 2 and 3 indicate that the supplier (BLSM) is negatively correlated with the position, and customer (BMSL) is positively correlated with the position. A firm with a small position value implies that controlling shareholders tend to place the supplier in a higher position in the pyramid than the customer. Besides, supplier (NS), supplier (NS>0), and supplier (BS) also present negative coefficients.

The supplier and customer are variables that consider both sales and purchases between affiliates within the group, but columns 7 and 8 analyze sales and purchase separately. Sell (buy) High is a dummy variable indicating whether a company sells (buys) more to (from) affiliates than the median value in the group. Column 7 indicates that a firm that sells more to affiliates in the group is placed in a higher position than a firm that sells less. However, a firm that buys more from affiliates is placed in a lower position than a firm that buys less from affiliates in the business group.

4.3 The supply chain and ownership structure conditional on group size

In this section, the whole sample is divided into three sub-groups based on the total assets of affiliates. Previously, business groups with total assets of more than five trillion KRW were designated as large business groups and regulated. However, it has been highlighted that sanctions against large companies, such as the Samsung Group, with assets of several hundred trillion KRW, and startups such as Kakao Group, which have just exceeded five trillion KRW, on a similar basis are unfair. Therefore, the Korean Fair Trade Commission (KFTC) has announced the revision of enforcement decree, that business groups with total assets of five trillion KRW or more are defined as groups subject to disclosure. Groups with total assets of 10 trillion or more are defined as groups subject to the limitations on mutual investment. It implies that 10 trillion KRW can be a cutoff to define whether a group is large enough to require stronger regulation. According to this enforcement decree, Panel

A and Panel B present business groups with total assets less than 10 trillion KRW, and more than 10 trillion KRW, respectively, excluding the top 5 groups. Panel C indicates the result of the top 5 business groups, respectively.

--- Insert Table 5 Panel A, B, and C ---

In Panel A, the key variable that explains the position proposed by Almeida et al. (2011), profitability (Ebit/assets), does not show the results in the sub-sample consisting of business groups with total assets less than 10 trillion KRW. However, supply chain variables, suppliers and customers, reveal statistically significant results. It implies that in a relatively small business group, the supply chain plays a more important role in describing the position than the profitability. While Panel B presents that both profitability and supply chain variables account for the position, Panel C indicates that in the top 5 business groups based on total assets, the supply chain variables lose explanatory power, and only the profitability variable describes the position.

This result questions the selection hypothesis proposed by Almeida et al. (2011). In their paper, the reason why firms with high financial constraints (low-profitable firms) are located at the bottom of the pyramid is that these firms have difficulty in external financing. Accordingly, the smaller sized groups which are more likely to have higher financial constraints than the larger groups should show a more pronounced selection effect. However, in my sub-sample test, the profitability effect is not realized in a small group, but the supply chain effect is strong. However, the profitability effect appears, but the supply chain effect does not appear in the larger groups, which is inconsistent with the selection hypothesis. It implies that a selection for tunneling forms the position within the group, that is, expropriation of corporate opportunity. The controlling shareholders may choose to place the supplier at the top of the pyramid to enjoy high profitability by monopolizing their affiliates through exclusive sale contracts within the business group. As the group grows and the total

assets of the group exceed 10 trillion KRW, the suppliers that have taken the opportunity also grow, and the actual profitability appears. Accordingly, both the supply chain and profitability account for the position simultaneously. In the top five groups, since the suppliers within the group have already developed expropriating of corporate opportunity, there is a high probability that they will no longer exist as suppliers in the group. Therefore, the top 5 groups present that the profitability variable rather than the supply chain explains the position in the group.

4.4. Endogeneity control

This section presents additional analysis to address the endogeneity issue. There is a possibility that cross-sectional compounder or omitted variable concern may exist. I construct another independent variable, Become a supplier, for the firm that switches to a supplier in the full sample to investigate how the firm that changes its status in the supply chain affects position changes. Moreover, the variables of change in position are constructed according to the previous literature. The variable position increase takes the value of one if the position increases by more than 0.10 from one year to the next, and zero, otherwise. The variable position decrease takes the value of one if the position decreases by more than 0.10 from one year to the next, and zero, otherwise.

Statistical difference is provided to the firm characteristics, a year before changing to a supplier to dismiss the possible claim that the firm switching to a supplier may have endogenously changed the status of the supply chain due to the nature of a specific firm.

--- Insert Table 6 Panel A and B ---

Panel A of Table 6 illustrates that there is no statistical difference in the firm's characteristics between the supplier and others one year before changing to the

supplier. Panel B of Table 6 reports the result of univariate analysis to show the statistical differences in key variables between become a supplier and others. It presents that the mean value of position decrease of firms that switch to a supplier is larger than others in the business group.

--- Insert Table 7 ---

In Table 7, the variable position with position increase and position decrease in Eq. (3) is replaced. Dependent variables indicate a change in position in both directions, increasing and decreasing, and the value of one is given to the firm whose position changes in the next period based on a specific threshold value. In column (1) and (2), dependent variables take a value of one if position changed by 0.10 in the next period in either way, following Almeida et al. (2011). Additionally, I add measures of the position changes using a different threshold in either way, for example, firms with the top 10% and 25% of position change in the next year. In column (3) and (4), dependent variables take a value of one if position changes in the next period are the top 10% within my sample in either way. In column (5) and (6), dependent variables take a value of one if position changes in the next period are the top 25% within my sample in either way.

Therefore, the firm that becomes a supplier has a statistically significant impact on the decrease in position but not increase in position. It implies that the firm which becomes a supplier is more likely to be at the top of the pyramid. Thus, it is consistent with the hypothesis that controlling shareholders tend to place the supplier in the upper part of the pyramid.

4.5. The supply chain and profit

As results suggest that high profitability may be induced by a position where profits are concentrated in the structure of the supply chain within the business group,

I conduct additional analysis to show the association between the supply chain and profit.

--- Insert Table 8 ---

Table 8 shows the relation between the supply chain and profit volume. Panel A shows the results using EBIT as a measure of profit volume, and Panel B shows the results using EBITDA. Columns 1 and 2 indicate that the supplier(BLSM) is positively correlated with profit volume, and customer(BMSL) is negatively correlated with profit volume. Besides, supplier(NS), supplier(NS>0), and supplier(BS) also present positive coefficients.

--- Insert Table 9 ---

Table 9 shows the relation between the supply chain and profit margin. Panel A presents the results using EBIT/sales as a measure of profit margin, and Panel B provides the results using EBITDA/sales. Columns 1 and 2 of Table 9 indicate that the supplier(BLSM) is positively correlated with profit margin and customer(BMSL) is negatively correlated with it. Besides, supplier(NS), supplier(NS>0), and supplier(BS) also present positive coefficients.

There is a significant difference in the results of profit margins compared to profit volume. In the results of profit volume (Table 8), the supplier has a more significant magnitude of coefficients than the customer. As shown in column 3 of Table 8, when the supplier and the customer are considered as independent variables simultaneously, the customer loses explanatory power. However, in the results of the profit margin (Table 9), the customer has a bigger magnitude of coefficients than the supplier. Moreover, column 3 of Table 9 indicates that even when the supplier and the customer are simultaneously considered as independent variables, the customer still retains significant explanatory power.

4.6. The supply chain and cost

Profit margin is measured by the ratio of operating income to sales, where operating profit is calculated by subtracting COGS and SG&A from sales. This section identifies whether the difference in profit margin between supplier and customer, shown in Table 9, is due to COGS or SG&A. First, the relation between the supply chain and the COGS is investigated. For example, if the supplier's high-profit margin is derived from cost competitiveness, the supplier should realize lower COGS than the customer. Conversely, if the customer's low-profit margin is due to the high cost of intermediate goods, they will realize high COGS.

--- Insert Table 10 ---

Contrary to expectations, Table 10 indicates that COGS of the supplier is higher, and that of the customer does not have a statistically significant difference. This result suggests that the difference in profit margin shown in Table 9 does not come from the cost competitiveness of the two.

--- Insert Table 11 ---

Second, Table 11 shows the relation between the supply chain and SGA costs. Columns 1 and 2 indicate that supplier spends less SG&A, while customer spends more. Moreover, the magnitude of the customer's coefficient is more significant than that of the supplier. This suggests that the difference in the coefficient of profit margin is due to this SG&A expense.

Besides, a promotion expense is a cost included in SG&A, and a firm incurs this expense to market their products or services to consumers. It ranges from giveaways, free samples, or other promotional strategies to help boost sales and

revenue.

--- Insert Table 12 ---

Table 12 shows the relation between the supply chain and the advertising and promotional cost. The results reveal that advertising and promotional costs also have a similar pattern as SG&A. It implies that the supplier within the business group has a higher profit margin by enabling easy sales generation and reducing various costs compared to the customer. Therefore, it also implies that the ownership structure can be formed as an incentive of expropriating corporate opportunity.

4.7. Matched sample analysis

In sections 4.5 and 4.6, I investigate the effect of supply chain on profit and cost by comparing the supplier and customer in the business group. This section demonstrates this association by comparing the supplier and customer to matched firms outside the business group, respectively. The matched sample consists of externally audited firms, excluding those in the business group and is selected to match the supplier and customer in the business group based on size, year, and industry. In this section, It raises the hypothesis that if the supplier is not part of the group, SG&A or marketing costs that an independent entity must pay will be paid less when it belongs to a business group, and that this cost reduction will eventually lead to increased profitability.

--- Insert Table 13 ---

Table 13 reports univariate results of the matched sample to show the statistical differences in key variables between samples in the business group and an outside group. Panel A suggests the supplier in the business group presents significantly

higher profit volume and -margin as well as lower cost than the matched sample. Panel B indicates the customer in the business group shows a lower profit margin and higher cost than the matched sample.

--- Insert Table 14 ---

Table 14 shows how the supply chain affects profit and cost in the matched sample. Panel A suggests how the supplier affects profit and cost compared to the matched sample of externally audited firms outside the business group. Supplier_matched is a dummy that takes the value of 1 if a firm is defined as a supplier within the business group, and 0 if a firm is in the matched sample. The supplier in the business group presents significantly higher profit volume and -margin as well as lower SG&A and advertising costs than the matched sample. Similar to the result of the comparison between the supplier and the customer in the business group, the result of panel A is also the same when compared with the matched sample from outside the business group. However, Panel B indicates how the customer affects profit and cost compared to the matched sample outside of the business group. Customer_matched is a dummy that takes a value of 1 if a firm is defined as a customer within the business group, and 0 if a firm is in the matched sample. The customer in the business group shows a lower profit margin, but profit volume and cost lose their statistical significance. This suggests that the effect of the supply chain is asymmetric and that the supplier is more influential than the customer.

4.8 Regulation effect

Being aware of the behavior of the controlling shareholders who expropriate corporate opportunity and benefit from minority shareholders, the Fair Trade Commission established the Article 23-2 in August 2013, and this law came into effect in 2015. After2015 is an indicator variable that takes the value one if the period

after the Article 23-2 of the Fair Trade Act is enforced, and zero otherwise.

--- Insert Table 15 ---

Table 12 reports the effect of the law on the relationship between supply chain and position. Column 2 indicates that after the law that regulates expropriating corporate opportunity, the controlling shareholders place the supplier at the lower part of the pyramid.

5. Conclusion

This study investigates how the supply chain affects the ownership structure in the Korean business group. Affiliates-level transaction data are used to identify the supplier and the customer to construct the supply chain within the business group. The result indicates that the controlling shareholder places the supplier higher than the customer on the pyramid. This evidence questions the previous study claiming that profitable firms are at a higher place on the pyramid. My finding suggests the high profitability of the companies at the top of the pyramid is endogenous, and the key is the supply chain because the suppliers generate high profits through exclusive sales contracts with member firms.

Moreover, this supply-chain effect is more prominent in the relatively small-sized group (less than 10 trillion KRW in total assets), but it disappears in the top 5 business groups. It implies that the position within the group can be formed by expropriation of corporate opportunity, that is, incentives for tunneling in the relatively small-sized business group (less than 10 trillion KRW in total assets) that are recently designated as large business groups. As the group grows, the suppliers that have taken the opportunity also grow, and the actual profitability will appear. Accordingly, both supply chain and profitability account for the position simultaneously in the business group, with the total assets exceed 10 trillion KRW

excluding the top 5 groups. However, since the suppliers within the group have already grown expropriating corporate opportunity, they will no longer exist as suppliers in the group in the top 5 groups. Therefore, the top 5 groups present that the profitability variable rather than the supply chain explains position in the group. This suggests that controlling shareholders' incentive to expropriate corporate opportunity may be an important factor in structuring business groups.

To address the endogeneity issue, the firm that switches to a supplier in the full sample was identified to investigate how the firm that changes its status in the supply chain affects position changes. The firm that changes its status in the supply chain to a supplier has a statistically significant impact on the decrease in position but not increase in position. It implies that the firm which becomes a supplier is more likely to be at the top of the pyramid. Thus, the fact that suppliers are chosen to be at the top of the pyramid is supported. The ownership structure is likely to be formed as an incentive for the expropriating corporate opportunity.

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Figure 1. Ownership structure of Hite Jinro in 2012.

This figure illustrates a summary of the ownership structure of the large business group, the Hite Jinro in 2012. Shaded boxes indicate suppliers and dotted boxes mean customers in the group.

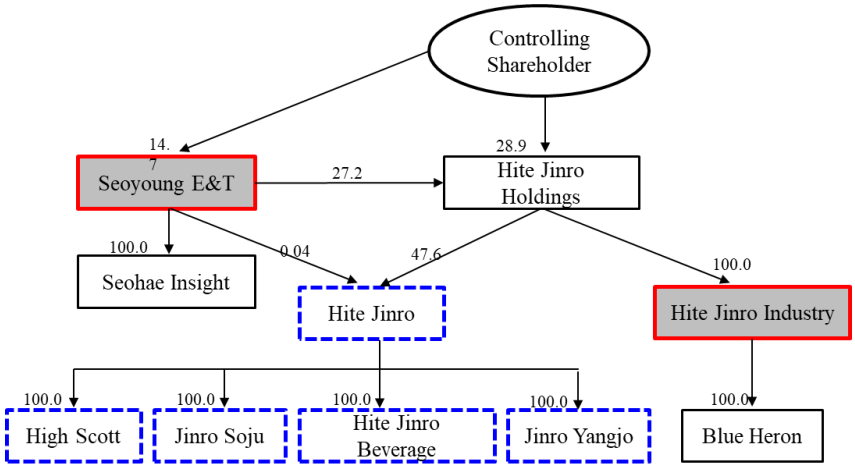

Figure 2. The example of calculating ultimate ownership.

This figure presents a simple example of calculating the ultimate ownership (cash flow right). The ultimate ownership which refers to the cash flow rights of the controlling shareholders is defined as the sum of indirect holdings through their affiliates in addition to direct holdings.

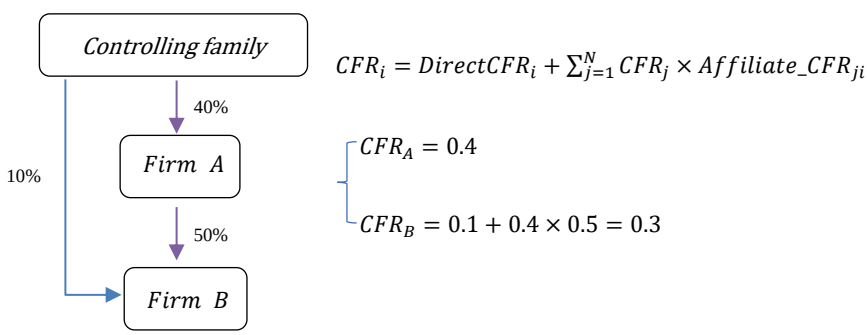

Table 1. Variable Definitions

This table provides the definitions of the variables used in this study.

Variable	Definition
measure of supply chain	
Supplier(BLSM)	1, if a firm's RP_buy is less than median and RP_sell is more than median; 0 otherwise
Customer(BMSL)	1, if a firm's RP_buy is more than median and RP_sell is less than median; 0 otherwise
Supplier(NS)	1, if RP_netsell is greater than the median within the business group; 0 otherwise
Supplier(NS>0)	1, if RP_netsell is greater than zero within the business group; 0 otherwise
Supplier(BS)	1, if a firm's RP_buy is less than median and RP_sell is more than median (Buy Less and Sell More); 0, if a firm's RP_buy is more than median and RP_sell is less than median (Buy More and Sell Less)
Sell High	1, if RP_sell is greater than median
Buy High	1, if RP_buy is greater than median
RPT	Sum of purchases and sales between affiliates scaled by its total sales
RP_sell	The amount of sales to affiliates scaled by its total sales
RP_buy	The amount of purchase from affiliates scaled by its total sales
RP_netsell	The ratio of subtracting purchases from the sales between affiliates to its total sales
measure of ownership	
Ultimate ownership	The sum of indirect holdings through their affiliates in addition to direct holdings; Defined in the text in detail
Position	A measure of distance how far away from controlling shareholders in pyramidal structure. Defined in the text in detail
control variables	
Size	Natural logarithm of total assets
Age	Natural logarithm of the number of years since the company's establishment
List	1, if the company is listed. (either in KSE or KOSDAQ); 0 otherwise
Lev	Ratio of book value of total debt to total asset
Ebit/asset	Ratio of operating income to total asset
Ebit/sales	Ratio of operating income to total sales
Ebitda/sales	Ratio of operating income before depreciation and amortization to total sales
Signed Ln(ebit)	Natural logarithm of the absolute value of ebit and the original sign is assigned
Signed Ln(ebitda)	Natural logarithm of the absolute value of ebitda and the original sign is assigned
Cogs/sales	Ratio of cost of goods sold(GOGS) to total sales
Sga/sales	Ratio of sales, general, and administrative(SG&A) cost to total sales
Ad_promotion/sales	Sum of advertisement and promotion expense scaled by total sales

Table 2. Summary Satistics

This table reports summary statistics for the sample firm-year observations constructed using all affiliated firms (public and private) in the large business groups. The sample observations are from 2009 to 2016. Variables are organized into three categories: measure of supply chain, measure of ownership, and control variables. For the measure of supply chain, the transaction matrix between affiliates within a business group is hand-collected from the DART. Ownership data are from the Korean Fair Trade Commission (KFTC) and financial and accounting variables are from DataGuide provided by Fnguide. Detailed definitions of variables are provided in Table 1.

	MEAN	SD	p25	p50	p75	N
measure of supply chain						
Supplier(BLSM)	0.246	0.431	0.000	0.000	0.000	6016
Customer(BMSL)	0.248	0.432	0.000	0.000	0.000	6016
Supplier(NS)	0.485	0.500	0.000	0.000	1.000	6016
Supplier(NS>0)	0.537	0.499	0.000	1.000	1.000	6016
Supplier(BS)	0.498	0.500	0.000	0.000	1.000	2971
RPT	0.515	0.905	0.080	0.277	0.707	6016
RP_sell	0.273	0.335	0.006	0.093	0.481	6016
RP_buy	0.236	0.800	0.014	0.055	0.173	6016
RP_netsell	0.042	0.842	-0.057	0.002	0.355	6016
measure of ownership						
Ultimate ownership	0.285	0.266	0.093	0.194	0.384	5807
Position	2.394	0.905	1.955	2.261	3.000	5702
Delta_position	-0.006	0.269	-0.002	0.000	0.001	4345
control variables						
Size	26.033	1.933	24.481	25.794	27.350	6016
Age	2.664	0.925	2.079	2.708	3.401	6012
List	0.243	0.429	0.000	0.000	0.000	6016
Lev	0.514	0.238	0.332	0.531	0.685	6015
Ebit/assets	0.043	0.086	0.006	0.037	0.079	6016
Ebit/sales	0.003	0.550	0.008	0.041	0.103	6016
Ebitda/sales	0.023	0.542	0.013	0.050	0.120	6016
Signed Ln(ebit)	11.337	14.452	15.355	17.682	19.426	6016
Signed Ln(ebitda)	12.382	13.744	15.953	17.925	19.622	6016
Cogs/sales	0.807	0.256	0.713	0.858	0.923	5289
Sga/sales	0.265	0.387	0.053	0.106	0.300	6007
Ad_promotion/sales	0.016	0.044	0.000	0.001	0.008	6016

Table 3. Univariate results

This table reports the statistical differences in key variables between the *supplier* and *customer*. The sample firm-year observations are constructed using all affiliated firms (public and private) in the large business group from 2009 to 2016. Panel A is the result of the Buy & Sell(BS) criterion and Panel B is the result of the Netsell(NS) criterion. With BS criterion, *Supplier*(BLSM) is identified as a firm which buys from affiliates less than median and sells to affiliates more than median; *Customer* (BMSL) is identified as a firm which buys from affiliates more than median and sells to affiliates less than median. With NS criterion, *Supplier* is identified as a firm whose netsell variable is greater than the median within the business group; *Customer* is identified as a firm whose netsell variable is less than the median within the business group, where a netsell variable is made by subtracting purchases from the sales between affiliates. Detailed definitions of variables are provided in Table 1.

Panel A. Buy & Sell

	Supplier(BLSM)			Customer(BMSL)			P-value of difference	
	Mean	Median	N	Mean	Median	N	Mean	Median
Ut_own	0.338	0.217	1465	0.254	0.181	1437	0.000	0.000
Position	2.287	2.173	1444	2.418	2.248	1406	0.000	0.000
Size	25.565	25.206	1478	26.517	26.439	1493	0.000	0.000
Age	2.621	2.639	1475	2.644	2.773	1493	0.491	0.186
List	0.164	0.000	1478	0.330	0.000	1493	0.000	0.000
Lev	0.515	0.531	1478	0.513	0.526	1493	0.775	0.677
Ebit/assets	0.047	0.038	1478	0.043	0.041	1493	0.285	0.969
Ebit/sales	0.072	0.038	1478	-0.109	0.047	1493	0.000	0.388
Ebitda/sales	0.086	0.044	1478	-0.082	0.057	1493	0.000	0.021
Sga/sales	0.209	0.088	1476	0.342	0.144	1492	0.000	0.000
Ad_promo/sales	0.010	0.000	1478	0.025	0.002	1493	0.000	0.000

Panel B. Netsell

	Supplier(BLSM)			Customer(BMSL)			P-value of difference	
	Mean	Median	N	Mean	Median	N	Mean	Median
Ut_own	0.306	0.203	2864	0.265	0.189	2943	0.000	0.000
Position	2.353	2.240	2818	2.435	2.297	2884	0.001	0.002
Size	25.691	25.365	2918	26.354	26.259	3098	0.000	0.000
Age	2.647	2.708	2914	2.680	2.773	3098	0.160	0.032
List	0.183	0.000	2918	0.300	0.000	3098	0.000	0.000
Lev	0.509	0.526	2917	0.518	0.535	3098	0.180	0.285
Ebit/assets	0.044	0.037	2918	0.041	0.037	3098	0.206	0.389
Ebit/sales	0.057	0.039	2918	-0.049	0.044	3098	0.000	0.641
Ebitda/sales	0.074	0.046	2918	-0.024	0.055	3098	0.000	0.055
Sga/sales	0.231	0.093	2913	0.296	0.127	3094	0.000	0.000
Ad_promo/sales	0.011	0.000	2918	0.021	0.001	3098	0.000	0.000

Table 4. Ownership structure and supply chain

This table presents the results of OLS regression of the position on the supplier to show how the supply chain is associated with the ownership structure (Eq. (1)). Position represents the location of each firm in the pyramid structure. Supplier(BLSM) is a dummy that takes a value of 1 if a firm buys from affiliates less than median and sells to affiliates more than median, and 0 otherwise. Customer (BMSL) is a dummy that takes a value of 1 if a firm buys from affiliates more than median and sells to affiliates less than median, and 0 otherwise. Supplier(NS) is a dummy that takes a value of 1 if netsell variable is greater than the median within the business group, where a netsell variable is made by subtracting purchases from the sales between affiliates. Sell (Buy) High is a dummy variable which is given a value of one if a company sells (buys) more to (from) affiliates than the median value in the group. Supplier(BS) is a dummy that takes a value of 1 if a firm is identified as supplier(BLSM), and 0 if a firm is identified as Customer(BMSL). All control variables are lagged and detailed definitions of control variables are provided in Table 1. T-values are reported in the parenthesis and are based on standard errors clustered at the firm level. ***, **. * indicate significance at 1%, 5%, and 10% level, respectively.

	Dependent variable: Position								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ebit/assets	-0.5934***	-0.5676***	-0.5983***	-0.5706***	-0.6043***	-0.5990***	-0.5911***	-0.5877***	-0.3807
	(-2.875)	(-2.770)	(-2.897)	(-2.785)	(-2.922)	(-2.896)	(-2.856)	(-2.865)	(-1.524)
Supplier(BLSM)		-0.2099***		-0.2001***					
		(-5.045)		(-4.825)					
Customer(BMSL)			0.0902**	0.0329					
			(2.218)	(0.816)					
Supplier(NS)					-0.1736***				
					(-4.758)				
Supplier(NS>0)						-0.1793***			
						(-4.670)			
Sell High							-0.0889**		
							(-2.355)		
Buy High								0.1336***	
								(3.873)	
Supplier(BS)									-0.2348***
									(-4.100)
Size	-0.1130***	-0.1163***	-0.1163***	-0.1174***	-0.1198***	-0.1202***	-0.1143***	-0.1181***	-0.1264***
	(-7.361)	(-7.574)	(-7.459)	(-7.554)	(-7.681)	(-7.721)	(-7.394)	(-7.650)	(-5.951)
Age	-0.1119***	-0.1100***	-0.1079***	-0.1086***	-0.1061***	-0.1052***	-0.1119***	-0.1047***	-0.0997***
	(-4.892)	(-4.894)	(-4.680)	(-4.791)	(-4.663)	(-4.619)	(-4.902)	(-4.584)	(-3.365)
List	-0.1025	-0.1207*	-0.1098*	-0.1225*	-0.1209*	-0.1152*	-0.1166*	-0.1038	-0.1271
	(-1.595)	(-1.909)	(-1.714)	(-1.939)	(-1.900)	(-1.809)	(-1.829)	(-1.623)	(-1.528)
Leverage	0.0999	0.0970	0.0983	0.0965	0.0844	0.0880	0.0971	0.0998	-0.1166
	(1.089)	(1.074)	(1.075)	(1.069)	(0.926)	(0.967)	(1.060)	(1.103)	(-0.905)
Observations	5,430	5,430	5,430	5,430	5,430	5,430	5,430	5,430	2,705
R-squared	0.456	0.464	0.457	0.465	0.463	0.463	0.458	0.461	0.467
Year & Group & Ind FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Clustered by firm	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 5. Ownership structure and supply chain (sub sample test)

This table presents the sub sample test of Table 4. Each panel shows the results of subgroups classified into business groups based on the total assets of affiliates. Panel A presents business groups with total assets less than 10 trillion KRW, Panel B reveals business groups with total assets more than 10 trillion KRW excluding the top 5 groups, and Panel C indicates the result of top 5 business groups, respectively. Position represents the location of each firm in the pyramid structure. Supplier(BLSM) is a dummy that takes a value of 1 if a firm buys from affiliates less than median and sells to affiliates more than median, and 0 otherwise. Customer (BMSL) is a dummy that takes a value of 1 if a firm buys from affiliates more than median and sells to affiliates less than median, and 0 otherwise. Supplier(NS) is a dummy that takes a value of 1 if netsell variable is greater than the median within the business group, where a netsell variable is made by subtracting purchases from the sales between affiliates. Sell (Buy) High is a dummy variable which is given a value of one if a company sells (buys) more to (from) affiliates than the median value in the group. Supplier(BS) is a dummy that takes a value of 1 if a firm is identified as supplier(BLSM), and 0 if a firm is identified as Customer(BMSL). All control variables are lagged and detailed definitions of control variables are provided in Table 1. T-values are reported in the parenthesis and are based on standard errors clustered at the firm level. ***, **. * indicate significance at 1%, 5%, and 10% level, respectively.

Panel A: Business groups with total assets less than 10 trillion won

	Dependent variable: Position								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ebit/assets	-0.0847	-0.0845	-0.1331	-0.1132	-0.0504	-0.0566	-0.0657	-0.1274	-0.3824
	(-0.276)	(-0.282)	(-0.431)	(-0.373)	(-0.166)	(-0.187)	(-0.214)	(-0.420)	(-0.845)
Supplier(BLSM)		-0.3004***		-0.2450***					
		(-4.474)		(-3.741)					
Customer(BMSL)			0.2435***	0.1444**					
			(3.919)	(2.517)					
Supplier(NS)					-0.3227***				
					(-5.406)				
Supplier(NS>0)						-0.2792***			
						(-4.505)			
Sell High							-0.2728***		
							(-4.504)		
Buy High								0.1596***	
								(2.786)	
Supplier(BS)									-0.4023***
									(-4.744)
Size	-0.1481***	-0.1475***	-0.1522***	-0.1501***	-0.1466***	-0.1503***	-0.1429***	-0.1536***	-0.0743**
	(-4.336)	(-4.496)	(-4.506)	(-4.569)	(-4.417)	(-4.472)	(-4.327)	(-4.551)	(-1.983)
Age	-0.1043***	-0.1136***	-0.0897**	-0.1032***	-0.0988***	-0.1043***	-0.1015***	-0.1013***	-0.1038**
	(-2.715)	(-3.141)	(-2.328)	(-2.818)	(-2.706)	(-2.857)	(-2.739)	(-2.658)	(-2.406)
List	0.0858	0.0792	0.0711	0.0717	0.0517	0.0585	0.0556	0.0903	-0.2211*
	(0.741)	(0.726)	(0.625)	(0.657)	(0.475)	(0.531)	(0.510)	(0.790)	(-1.786)
Leverage	0.4154**	0.4050***	0.3605**	0.3743**	0.3320**	0.3630**	0.3847**	0.3919**	0.2098
	(2.545)	(2.632)	(2.267)	(2.443)	(2.171)	(2.363)	(2.463)	(2.444)	(1.024)
Observations	1,249	1,249	1,249	1,249	1,249	1,249	1,249	1,249	679
R-squared	0.481	0.504	0.495	0.509	0.513	0.504	0.505	0.489	0.530
Year & Group & Ind FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Clustered by firm	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 5 (continued)

Panel B: Business groups with total assets more than 10 trillion won (excluding top 5 groups)									
	Dependent variable: Position								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ebit/assets	-0.7830***	-0.7472***	-0.7917***	-0.7488***	-0.7971***	-0.7756***	-0.7832***	-0.7797***	-0.7046*
	(-2.684)	(-2.599)	(-2.718)	(-2.611)	(-2.729)	(-2.650)	(-2.692)	(-2.681)	(-1.842)
Supplier(BLSM)		-0.2119***		-0.2094***					
		(-3.543)		(-3.535)					
Customer(BMSL)			0.0630	0.0088					
			(1.119)	(0.160)					
Supplier(NS)					-0.1825***				
					(-3.531)				
Supplier(NS>0)						-0.1684***			
						(-2.998)			
Sell High							-0.0936*		
							(-1.716)		
Buy High								0.1009**	
								(2.106)	
Supplier(BS)									-0.2484***
									(-2.961)
Size	-0.1203***	-0.1221***	-0.1216***	-0.1223***	-0.1280***	-0.1285***	-0.1212***	-0.1223***	-0.1444***
	(-5.241)	(-5.369)	(-5.248)	(-5.337)	(-5.536)	(-5.532)	(-5.269)	(-5.310)	(-4.242)
Age	-0.0712**	-0.0672**	-0.0677*	-0.0667**	-0.0607*	-0.0588*	-0.0695**	-0.0655*	-0.0400
	(-2.063)	(-2.008)	(-1.949)	(-1.979)	(-1.776)	(-1.713)	(-2.026)	(-1.905)	(-0.794)
List	-0.1617*	-0.1702*	-0.1646*	-0.1705*	-0.1699*	-0.1676*	-0.1730*	-0.1583*	-0.0091
	(-1.697)	(-1.811)	(-1.735)	(-1.818)	(-1.805)	(-1.778)	(-1.824)	(-1.673)	(-0.075)
Leverage	0.2026	0.1941	0.1995	0.1938	0.1895	0.1980	0.1978	0.1987	0.0087
	(1.556)	(1.510)	(1.530)	(1.505)	(1.461)	(1.524)	(1.517)	(1.535)	(0.046)
Observations	2,423	2,423	2,423	2,423	2,423	2,423	2,423	2,423	1,157
R-squared	0.489	0.497	0.490	0.497	0.497	0.496	0.491	0.492	0.525
Year & Group & Ind FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Clustered by firm	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 5 (continued)

Panel C: Top 5 business groups based on total assets

	Dependent variable: Position								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ebit/assets	-0.6747*	-0.6666*	-0.6719*	-0.6654*	-0.6696*	-0.6749*	-0.6677*	-0.6247	-0.4901
	(-1.685)	(-1.653)	(-1.676)	(-1.650)	(-1.667)	(-1.690)	(-1.675)	(-1.560)	(-1.112)
Supplier(BLSM)		-0.0314		-0.0281					
		(-0.389)		(-0.357)					
Customer(BMSL)			0.0206	0.0147					
			(0.236)	(0.170)					
Supplier(NS)					-0.0357				
					(-0.481)				
Supplier(NS>0)						-0.1072			
						(-1.338)			
Sell High							0.0779		
							(1.007)		
Buy High								0.1033	
								(1.352)	
Supplier(BS)									-0.0421
									(-0.340)
Size	-0.1025***	-0.1034***	-0.1035***	-0.1040***	-0.1041***	-0.1061***	-0.1011***	-0.1087***	-0.1266***
	(-3.979)	(-3.970)	(-3.902)	(-3.897)	(-3.926)	(-4.079)	(-3.912)	(-4.192)	(-3.173)
Age	-0.1656***	-0.1657***	-0.1655***	-0.1656***	-0.1657***	-0.1656***	-0.1631***	-0.1618***	-0.1859***
	(-3.484)	(-3.478)	(-3.473)	(-3.470)	(-3.472)	(-3.444)	(-3.464)	(-3.401)	(-2.938)
List	-0.0993	-0.1039	-0.1024	-0.1056	-0.1058	-0.1130	-0.0769	-0.1000	-0.1060
	(-0.828)	(-0.863)	(-0.852)	(-0.875)	(-0.880)	(-0.938)	(-0.641)	(-0.833)	(-0.609)
Leverage	-0.2032	-0.2016	-0.2007	-0.2000	-0.2027	-0.2100	-0.2043	-0.1872	-0.5088**
	(-1.093)	(-1.086)	(-1.082)	(-1.079)	(-1.092)	(-1.135)	(-1.097)	(-1.016)	(-2.077)
Observations	1,758	1,758	1,758	1,758	1,758	1,758	1,758	1,758	869
R-squared	0.479	0.479	0.479	0.479	0.479	0.481	0.480	0.481	0.477
Year & Group & Ind FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Clustered by firm	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 6. Univariate analysis of become a supplier

This table reports the statistical differences in key variables between become a supplier and others. Become a supplier indicates the firm that switches to a supplier in the full sample. Panel A suggests statistical differences in key variables a year before becoming a supplier. Panel B indicates statistical differences after becoming a supplier. According to the previous literature, the variable position increase takes the value of one if position increased by more than 0.10 from one year to the next, and zero otherwise. The variable position decrease takes the value of one if position decreased by more than 0.10 from one year to the next, and zero otherwise. Detailed definitions of other variables are provided in Table 1.

Panel A. One year before becoming a supplier

	Year Before Become a Supplier			Others			P-value of difference	
	Mean	Median	N	Mean	Median	N	Mean	Median
Ut_own	0.312	0.202	250	0.284	0.194	5557	0.107	0.335
Position	2.398	2.310	249	2.394	2.258	5453	0.949	0.570
Position Increase	0.084	0.000	166	0.057	0.000	4179	0.143	0.143
Position Decrease	0.066	0.000	166	0.069	0.000	4179	0.876	0.876
Size	25.831	25.621	255	26.042	25.804	5761	0.088	0.114
Age	2.592	2.639	254	2.667	2.708	5758	0.204	0.444
List	0.177	0.000	255	0.246	0.000	5761	0.012	0.012
Lev	0.511	0.516	255	0.514	0.532	5760	0.826	0.905
Ebit/assets	0.039	0.034	255	0.043	0.037	5761	0.502	0.252
Ebit/sales	0.032	0.041	255	0.001	0.041	5761	0.384	0.932
ebitda/sales	0.055	0.048	255	0.022	0.050	5761	0.337	0.972
sga/sales	0.251	0.095	255	0.265	0.107	5752	0.573	0.675
ad_promo/sales	0.012	0.000	255	0.017	0.001	5761	0.109	0.009

Panel B. Become a supplier

	Become a Supplier			Others			P-value of difference	
	Mean	Median	N	Mean	Median	N	Mean	Median
Ut_own	0.300	0.202	275	0.284	0.194	5532	0.353	0.648
Position	2.397	2.349	272	2.394	2.252	5430	0.956	0.666
Position Increase	0.061	0.000	248	0.058	0.000	4097	0.876	0.876
Position Decrease	0.101	0.000	248	0.067	0.000	4097	0.044	0.044
Size	25.829	25.556	275	26.043	25.804	5741	0.074	0.082
Age	2.714	2.708	274	2.662	2.708	5738	0.361	0.509
List	0.178	0.000	275	0.246	0.000	5741	0.011	0.011
Lev	0.508	0.509	275	0.514	0.532	5740	0.669	0.691
Ebit/assets	0.041	0.032	275	0.043	0.037	5741	0.742	0.502
Ebit/sales	0.049	0.043	275	0.001	0.041	5741	0.156	0.691
ebitda/sales	0.069	0.048	275	0.021	0.050	5741	0.152	0.857
sga/sales	0.221	0.095	275	0.267	0.107	5732	0.057	0.302
ad_promo/sales	0.011	0.000	275	0.017	0.001	5741	0.039	0.006

Table 7. Become a supplier and position changes

This table shows the effect of changes the status in supply chain on the position changes. Dependent variables are changes in position in both directions, increasing and decreasing. In column (1) and (2), dependent variables take a value of one if position changed by 0.10 in the next period in either way, following Almeida et al.(2011). In column (3) and (4), dependent variables take a value of one if position changes in the next period is the top 10% in either way. In column (5) and (6), dependent variables take a value of one if position changes in the next period is the top 25% in either way. Become a supplier indicates the firm that changes its status to a supplier in supply chain within the business group. All control variables are lagged and detailed definitions of variables are provided in Table 1. T-values are reported in the parenthesis and are based on standard errors clustered at the firm level. ***, **. * indicate significance at 1%, 5%, and 10% level, respectively.

	Standards in previous literature		Top 10 pencentile change		Top 25 pencentile change	
Dependent var: Position change	Increase	Decrease	Increase	Decrease	Increase	Decrease
	(1)	(2)	(3)	(4)	(5)	(6)
Become a supplier	0.0007	0.0336*	0.0059	0.0365*	0.0183	0.0490*
	(0.045)	(1.904)	(0.310)	(1.698)	(0.710)	(1.807)
Ebit/asset	-0.0215	0.0625	-0.0363	0.0172	-0.1463	-0.1106
	(-0.417)	(1.286)	(-0.553)	(0.268)	(-1.642)	(-1.301)
Size	-0.0053**	-0.0061**	0.0003	-0.0078**	0.0031	-0.0071
	(-2.019)	(-2.449)	(0.084)	(-2.184)	(0.637)	(-1.417)
Age	0.0028	0.0007	-0.0050	-0.0085	-0.0066	-0.0020
	(0.724)	(0.165)	(-0.827)	(-1.462)	(-0.804)	(-0.240)
List	0.0537***	0.0128	0.0316	-0.0094	0.0208	-0.0076
	(3.040)	(0.773)	(1.356)	(-0.420)	(0.624)	(-0.242)
Leverage	0.0066	0.0182*	0.0093	0.0190	0.0197	0.0187
	(0.645)	(1.722)	(0.608)	(1.268)	(0.907)	(0.828)
Constant	0.1662**	0.2336***	0.0465	0.4469***	0.0149	0.6799***
	(2.500)	(3.123)	(0.489)	(3.884)	(0.115)	(3.724)
Observations	4,341	4,341	4,341	4,341	4,341	4,341
R-squared	0.118	0.153	0.052	0.043	0.077	0.083
Year & Group & Ind FE	YES	YES	YES	YES	YES	YES
Clustered by firm	YES	YES	YES	YES	YES	YES

Table 8. The supply chain and profit volume

This table shows the relation between the supply chain and the profit volume. In Panel A, the dependent variable is signed natural logarithm of earning before interest, tax (EBIT). In Panel B, the dependent variable is signed natural logarithm of earning before interest, tax, depreciation and amortization (EBITDA). Supplier(BLSM) is a dummy that takes a value of 1 if a firm buys from affiliates less than median and sells to affiliates more than median, and 0 otherwise. Customer (BMSL) is a dummy that takes a value of 1 if a firm buys from affiliates more than median and sells to affiliates less than median, and 0 otherwise. Supplier(NS) is a dummy that takes a value of 1 if netsell variable is greater than the median within the business group, where a netsell variable is made by subtracting purchases from the sales between affiliates. Sell (Buy) High is a dummy variable which is given a value of one if a company sells (buys) more to (from) affiliates than the median value in the group. Supplier(BS) is a dummy that takes a value of 1 if a firm is identified as supplier(BLSM), and 0 if a firm is identified as Customer(BMSL). All control variables are lagged and detailed definitions of control variables are provided in Table 1. T-values are reported in the parenthesis and are based on standard errors clustered at the firm level. ***, **. * indicate significance at 1%, 5%, and 10% level, respectively.

Panel A.	Dependent variable: Signed LN(ebit)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Supplier(BLSM)	1.8265***		1.5515***					
	(3.309)		(2.728)					
Customer(BMSL)		-1.3595**	-0.9224					
		(-2.210)	(-1.452)					
Supplier(NS)				1.8595***				
				(3.562)				
Supplier(NS>0)					1.7781***			
					(3.317)			
Sell High						1.4686***		
						(2.727)		
Buy High							-0.9116*	
							(-1.854)	
Supplier(BS)								2.4761***
								(3.209)
Size	1.4330***	1.4548***	1.4620***	1.4747***	1.4709***	1.4234***	1.4414***	1.3191***
	(6.386)	(6.448)	(6.497)	(6.516)	(6.504)	(6.300)	(6.457)	(4.486)
Age	1.6541***	1.6085***	1.6152***	1.6143***	1.6083***	1.6732***	1.6185***	1.3202***
	(4.455)	(4.311)	(4.345)	(4.345)	(4.321)	(4.476)	(4.374)	(2.753)
List	-0.8181	-0.8558	-0.7655	-0.7756	-0.8490	-0.7451	-0.9556	0.6596
	(-0.941)	(-0.975)	(-0.877)	(-0.885)	(-0.974)	(-0.853)	(-1.094)	(0.581)
Leverage	-1.4297	-1.4214	-1.4164	-1.3028	-1.3440	-1.4127	-1.4413	-1.3618
	(-1.112)	(-1.097)	(-1.101)	(-1.014)	(-1.043)	(-1.095)	(-1.113)	(-0.805)
Observations	5,723	5,723	5,723	5,723	5,723	5,723	5,723	2,816
R-squared	0.152	0.151	0.153	0.153	0.152	0.152	0.150	0.187
Year & Group & Ind FE	YES	YES	YES	YES	YES	YES	YES	YES
Clustered by firm	YES	YES	YES	YES	YES	YES	YES	YES

Table 8 (continued)

Panel B.	Dependent variable: Signed LN(ebitda)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Supplier(BLSM)	1.7202***		1.4510***					
	(3.247)		(2.657)					
Customer(BMSL)		-1.3118**	-0.9030					
		(-2.311)	(-1.540)					
Supplier(NS)				1.7822***				
				(3.613)				
Supplier(NS>0)					1.6625***			
					(3.259)			
Sell High						1.3845***		
						(2.706)		
Buy High							-0.8807*	
							(-1.922)	
Supplier(BS)								2.4500***
								(3.346)
Size	1.5388***	1.5605***	1.5673***	1.5793***	1.5741***	1.5298***	1.5477***	1.5048***
	(7.369)	(7.405)	(7.453)	(7.475)	(7.443)	(7.271)	(7.455)	(5.586)
Age	1.7272***	1.6828***	1.6891***	1.6887***	1.6844***	1.7451***	1.6924***	1.2290***
	(4.809)	(4.665)	(4.700)	(4.703)	(4.678)	(4.825)	(4.732)	(2.676)
List	-1.3662*	-1.3992*	-1.3147	-1.3230	-1.3961*	-1.2973	-1.4954*	0.1187
	(-1.693)	(-1.717)	(-1.624)	(-1.628)	(-1.725)	(-1.602)	(-1.843)	(0.112)
Leverage	-0.1340	-0.1257	-0.1209	-0.0122	-0.0539	-0.1180	-0.1448	-0.4973
	(-0.109)	(-0.102)	(-0.099)	(-0.010)	(-0.044)	(-0.096)	(-0.117)	(-0.298)
Observations	5,723	5,723	5,723	5,723	5,723	5,723	5,723	2,816
R-squared	0.151	0.150	0.152	0.152	0.152	0.151	0.150	0.190
Year & Group & Ind FE	YES	YES	YES	YES	YES	YES	YES	YES
Clustered by firm	YES	YES	YES	YES	YES	YES	YES	YES

Table 9. The supply chain and profit margin

This table shows the relation between the supply chain and the profit margin. In Panel A, the dependent variable is earning before interest, tax (EBIT) scaled by sales. In Panel B, the dependent variable is earning before interest, tax, depreciation and amortization (EBITDA) scaled by sales. *Supplier*(BLSM) is a dummy that takes a value of 1 if a firm buys from affiliates less than median and sells to affiliates more than median, and 0 otherwise. *Customer* (BMSL) is a dummy that takes a value of 1 if a firm buys from affiliates more than median and sells to affiliates less than median, and 0 otherwise. *Supplier*(NS) is a dummy that takes a value of 1 if netsell variable is greater than the median within the business group, where a netsell variable is made by subtracting purchases from the sales between affiliates. *Sell (Buy) High* is a dummy variable which is given a value of one if a company sells (buys) more to (from) affiliates than the median value in the group. *Supplier*(BS) is a dummy that takes a value of 1 if a firm is identified as supplier(BLSM), and 0 if a firm is identified as *Customer*(BMSL). All control variables are lagged and detailed definitions of control variables are provided in Table 1. T-values are reported in the parenthesis and are based on standard errors clustered at the firm level. ***, **. * indicate significance at 1%, 5%, and 10% level, respectively.

Panel A.	Dependent variable: Ebit/sales							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Supplier(BLSM)	0.0940***		0.0494***					
	(4.519)		(2.889)					
Customer(BMSL)		-0.1636***	-0.1497***					
		(-4.189)	(-3.864)					
Supplier(NS)				0.1131***				
				(4.334)				
Supplier(NS>0)					0.1104***			
					(4.200)			
Sell High						0.0794***		
						(3.064)		
Buy High							-0.1128***	
							(-4.847)	
Supplier(BS)								0.2211***
								(4.503)
Size	0.0181**	0.0226**	0.0228**	0.0209**	0.0207**	0.0176**	0.0211**	0.0162
	(2.064)	(2.544)	(2.568)	(2.373)	(2.368)	(2.004)	(2.407)	(1.169)
Age	0.0731***	0.0666***	0.0668***	0.0706***	0.0701***	0.0741***	0.0676***	0.0648**
	(4.244)	(4.012)	(4.033)	(4.165)	(4.122)	(4.280)	(3.992)	(2.374)
List	-0.0091	-0.0034	-0.0005	-0.0051	-0.0094	-0.0047	-0.0154	0.1028**
	(-0.311)	(-0.112)	(-0.017)	(-0.171)	(-0.317)	(-0.155)	(-0.535)	(2.004)
Leverage	0.0669	0.0689	0.0691	0.0748	0.0724	0.0679	0.0666	0.1172
	(0.965)	(1.002)	(1.008)	(1.073)	(1.040)	(0.975)	(0.964)	(1.064)
Observations	5,723	5,723	5,723	5,723	5,723	5,723	5,723	2,816
R-squared	0.093	0.104	0.105	0.097	0.096	0.092	0.098	0.152
Year & Group & Ind FE	YES	YES	YES	YES	YES	YES	YES	YES
Clustered by firm	YES	YES	YES	YES	YES	YES	YES	YES

Table 9 (*continued*)

Panel B.	Dependent variable: Ebitda/sales							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Supplier(BLSM)	0.0841***		0.0408**					
	(4.056)		(2.397)					
Customer(BMSL)		-0.1567***	-0.1452***					
		(-4.053)	(-3.789)					
Supplier(NS)				0.1038***				
				(4.000)				
Supplier(NS>0)					0.1009***			
					(3.847)			
Sell High						0.0728***		
						(2.831)		
Buy High							-0.1071***	
							(-4.642)	
Supplier(BS)								0.2104***
								(4.310)
Size	0.0191**	0.0235***	0.0237***	0.0217**	0.0216**	0.0187**	0.0220**	0.0189
	(2.204)	(2.675)	(2.694)	(2.493)	(2.488)	(2.153)	(2.539)	(1.381)
Age	0.0681***	0.0618***	0.0620***	0.0658***	0.0654***	0.0690***	0.0629***	0.0587**
	(3.996)	(3.761)	(3.778)	(3.919)	(3.881)	(4.030)	(3.748)	(2.171)
List	-0.0113	-0.0054	-0.0030	-0.0075	-0.0114	-0.0071	-0.0168	0.0968*
	(-0.391)	(-0.180)	(-0.100)	(-0.253)	(-0.391)	(-0.238)	(-0.594)	(1.913)
Leverage	0.0650	0.0669	0.0671	0.0722	0.0700	0.0659	0.0647	0.1153
	(0.942)	(0.980)	(0.984)	(1.042)	(1.011)	(0.952)	(0.942)	(1.055)
Observations	5,723	5,723	5,723	5,723	5,723	5,723	5,723	2,816
R-squared	0.096	0.107	0.108	0.100	0.099	0.096	0.101	0.151
Year & Group & Ind FE	YES	YES	YES	YES	YES	YES	YES	YES
Clustered by firm	YES	YES	YES	YES	YES	YES	YES	YES

Table 10. The supply chain and cost of goods sold (COGS)

This table shows the relation between the supply chain and the cost of goods sold (cogs). The dependent variable is the cost of goods sold (cogs) scaled by sales. *Supplier*(BLSM) is a dummy that takes a value of 1 if a firm buys from affiliates less than median and sells to affiliates more than median, and 0 otherwise. *Customer* (BMSL) is a dummy that takes a value of 1 if a firm buys from affiliates more than median and sells to affiliates less than median, and 0 otherwise. *Supplier*(NS) is a dummy that takes a value of 1 if netsell variable is greater than the median within the business group, where a netsell variable is made by subtracting purchases from the sales between affiliates. *Sell (Buy) High* is a dummy variable which is given a value of one if a company sells (buys) more to (from) affiliates than the median value in the group. *Supplier*(BS) is a dummy that takes a value of 1 if a firm is identified as supplier(BLSM), and 0 if a firm is identified as *Customer*(BMSL). All control variables are lagged and detailed definitions of control variables are provided in Table 1. T-values are reported in the parenthesis and are based on standard errors clustered at the firm level. ***, **. * indicate significance at 1%, 5%, and 10% level, respectively.

	Dependent variable: Cogs/sales							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Supplier(BLSM)	0.0309**		0.0320***					
	(2.561)		(2.705)					
Customer(BMSL)		-0.0045	0.0038					
		(-0.326)	(0.280)					
Supplier(NS)				0.0195*				
				(1.659)				
Supplier(NS>0)					0.0087			
					(0.701)			
Sell High						0.0260**		
						(2.020)		
Buy High							-0.0003	
							(-0.034)	
Supplier(BS)								0.0144
								(0.739)
Size	-0.0055	-0.0059	-0.0057	-0.0053	-0.0057	-0.0057	-0.0060	-0.0140**
	(-1.182)	(-1.247)	(-1.209)	(-1.113)	(-1.222)	(-1.212)	(-1.278)	(-2.240)
Age	-0.0181**	-0.0180**	-0.0179**	-0.0183**	-0.0181**	-0.0175**	-0.0178**	-0.0023
	(-2.278)	(-2.293)	(-2.283)	(-2.309)	(-2.295)	(-2.202)	(-2.254)	(-0.213)
List	0.0031	0.0003	0.0029	0.0023	0.0007	0.0043	-0.0000	-0.0249
	(0.163)	(0.016)	(0.152)	(0.121)	(0.037)	(0.228)	(-0.002)	(-0.954)
Leverage	0.0944***	0.0949***	0.0943***	0.0963***	0.0953***	0.0960***	0.0948***	0.1268***
	(3.078)	(3.090)	(3.075)	(3.154)	(3.114)	(3.142)	(3.085)	(3.002)
Observations	5,054	5,054	5,054	5,054	5,054	5,054	5,054	2,479
R-squared	0.278	0.276	0.278	0.277	0.276	0.278	0.276	0.310
Year & Group & Ind FE	YES	YES	YES	YES	YES	YES	YES	YES
Clustered by firm	YES	YES	YES	YES	YES	YES	YES	YES

Table 11. The supply chain and SGA cost

This table shows the relation between the supply chain and the SGA cost. The dependent variable is the SGA cost scaled by sales. *Supplier*(BLSM) is a dummy that takes a value of 1 if a firm buys from affiliates less than median and sells to affiliates more than median, and 0 otherwise. *Customer* (BMSL) is a dummy that takes a value of 1 if a firm buys from affiliates more than median and sells to affiliates less than median, and 0 otherwise. *Supplier*(NS) is a dummy that takes a value of 1 if netsell variable is greater than the median within the business group, where a netsell variable is made by subtracting purchases from the sales between affiliates. *Sell (Buy) High* is a dummy variable which is given a value of one if a company sells (buys) more to (from) affiliates than the median value in the group. *Supplier*(BS) is a dummy that takes a value of 1 if a firm is identified as supplier(BLSM), and 0 if a firm is identified as *Customer*(BMSL). All control variables are lagged and detailed definitions of control variables are provided in Table 1. T-values are reported in the parenthesis and are based on standard errors clustered at the firm level. ***, **. * indicate significance at 1%, 5%, and 10% level, respectively.

	Dependent variable: SGA/sales							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Supplier(BLSM)	-0.0933***		-0.0690***					
	(-5.865)		(-4.555)					
Customer(BMSL)		0.1008***	0.0813***					
		(4.716)	(3.819)					
Supplier(NS)				-0.0887***				
				(-5.530)				
Supplier(NS>0)					-0.0865***			
					(-5.315)			
Sell High						-0.0666***		
						(-4.038)		
Buy High							0.0778***	
							(5.286)	
Supplier(BS)								-0.1510***
								(-5.441)
Size	-0.0118**	-0.0140**	-0.0143**	-0.0137**	-0.0136**	-0.0112**	-0.0134**	-0.0054
	(-2.109)	(-2.478)	(-2.551)	(-2.433)	(-2.424)	(-1.981)	(-2.410)	(-0.670)
Age	-0.0433***	-0.0396***	-0.0399***	-0.0414***	-0.0411***	-0.0442***	-0.0397***	-0.0608***
	(-3.974)	(-3.715)	(-3.749)	(-3.854)	(-3.810)	(-4.047)	(-3.684)	(-3.887)
List	-0.0020	-0.0026	-0.0067	-0.0035	-0.0001	-0.0044	0.0046	-0.0264
	(-0.093)	(-0.122)	(-0.307)	(-0.163)	(-0.005)	(-0.202)	(0.215)	(-0.830)
Leverage	-0.1507***	-0.1514***	-0.1518***	-0.1567***	-0.1548***	-0.1514***	-0.1500***	-0.2125***
	(-3.437)	(-3.450)	(-3.484)	(-3.556)	(-3.514)	(-3.428)	(-3.415)	(-3.150)
Observations	5,715	5,715	5,715	5,715	5,715	5,715	5,715	2,814
R-squared	0.292	0.294	0.299	0.294	0.292	0.288	0.291	0.301
Year & Group & Ind FE	YES	YES	YES	YES	YES	YES	YES	YES
Clustered by firm	YES	YES	YES	YES	YES	YES	YES	YES

Table 12. The supply chain and Advertising and promotional cost

This table shows the relation between the supply chain and the Advertising and promotional cost. The dependent variable is the Advertising and promotional cost(AD_promotion) scaled by sales. *Supplier*(BLSM) is a dummy that takes a value of 1 if a firm buys from affiliates less than median and sells to affiliates more than median, and 0 otherwise. *Customer* (BMSL) is a dummy that takes a value of 1 if a firm buys from affiliates more than median and sells to affiliates less than median, and 0 otherwise. *Supplier*(NS) is a dummy that takes a value of 1 if netsell variable is greater than the median within the business group, where a netsell variable is made by subtracting purchases from the sales between affiliates. *Sell (Buy) High* is a dummy variable which is given a value of one if a company sells (buys) more to (from) affiliates than the median value in the group. *Supplier*(BS) is a dummy that takes a value of 1 if a firm is identified as supplier(BLSM), and 0 if a firm is identified as *Customer*(BMSL). All control variables are lagged and detailed definitions of control variables are provided in Table 1. T-values are reported in the parenthesis and are based on standard errors clustered at the firm level. ***, **. * indicate significance at 1%, 5%, and 10% level, respectively.

	Dependent variable: AD_promotion/sales							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Supplier(BLSM)	-0.0062***		-0.0049***					
	(-3.617)		(-2.857)					
Customer(BMSL)		0.0058***	0.0044**					
		(2.804)	(2.108)					
Supplier(NS)				-0.0056***				
				(-3.191)				
Supplier(NS>0)					-0.0054***			
					(-2.672)			
Sell High						-0.0052***		
						(-2.881)		
Buy High							0.0038**	
							(2.131)	
Supplier(BS)								-0.0094***
								(-3.703)
Size	0.0010	0.0009	0.0009	0.0009	0.0009	0.0011	0.0010	0.0022***
	(1.505)	(1.348)	(1.314)	(1.339)	(1.352)	(1.541)	(1.456)	(2.607)
Age	-0.0025**	-0.0023*	-0.0023*	-0.0024**	-0.0024*	-0.0026**	-0.0024*	-0.0065***
	(-2.039)	(-1.911)	(-1.932)	(-1.962)	(-1.933)	(-2.091)	(-1.935)	(-3.697)
List	0.0042	0.0043	0.0040	0.0042	0.0044	0.0040	0.0047	0.0088*
	(1.252)	(1.270)	(1.189)	(1.232)	(1.289)	(1.169)	(1.381)	(1.753)
Leverage	-0.0076	-0.0076	-0.0076	-0.0080	-0.0078	-0.0076	-0.0075	-0.0105*
	(-1.514)	(-1.526)	(-1.527)	(-1.585)	(-1.568)	(-1.529)	(-1.506)	(-1.742)
Observations	5,723	5,723	5,723	5,723	5,723	5,723	5,723	2,816
R-squared	0.281	0.281	0.283	0.281	0.281	0.281	0.280	0.377
Year & Group & Ind FE	YES	YES	YES	YES	YES	YES	YES	YES
Clustered by firm	YES	YES	YES	YES	YES	YES	YES	YES

Table 13. Univariate results of the matched sample

This table reports the statistical differences in key variables between samples in the business group and outside group. The matched sample consists of externally audited firms outside the business group, and is selected to match the supplier and customer in the business group based on size, year and industry. *Supplier*(BLSM) is a dummy that takes a value of 1 if a firm buys from affiliates less than median and sells to affiliates more than median, and 0 otherwise. *Customer* (BMSL) is a dummy that takes a value of 1 if a firm buys from affiliates more than median and sells to affiliates less than median, and 0 otherwise. Panel A suggests statistical differences between the supplier in the business group and the matched sample of externally audited firms out of the business group. Panel B indicates statistical differences between the customer in the business group and the matched sample of externally audited firms out of the business group. The statistical difference is reported in p-value. Detailed definitions of other variables are provided in Table 1.

Panel A. Supplier in the business group vs. Matched sample out of business group

	Supplier(BLSM)			Matched sample			P-value of difference	
	Mean	Median	N	Mean	Median	N	Mean	Median
Size	25.432	25.206	1478	25.522	25.283	1486	0.131	0.160
Age	2.621	2.639	1475	2.707	2.773	1485	0.005	0.002
List	0.164	0.000	1478	0.205	0.000	1486	0.005	0.005
Lev	0.515	0.531	1478	0.594	0.585	1485	0.000	0.000
Ebit/sales	0.066	0.038	1478	-0.037	0.050	1418	0.000	0.006
Ebitda/sales	0.082	0.044	1478	-0.002	0.061	1418	0.000	0.000
Sga/sales	0.213	0.088	1476	0.358	0.128	1415	0.000	0.000
Ad_promo/sales	0.010	0.000	1478	0.017	0.001	1418	0.000	0.000
Signed Ln(ebit)	11.987	17.330	1478	9.640	17.050	1485	0.000	0.006
Signed Ln(ebitda)	12.896	17.484	1478	10.509	17.226	1485	0.000	0.005
Cogs/sales	0.826	0.884	1276	0.782	0.837	1206	0.000	0.000

Panel B. Customer in the business group vs. Matched sample out of business group

	Customer(BMSL)			Matched sample			P-value of difference	
	Mean	Median	N	Mean	Median	N	Mean	Median
Size	26.179	26.439	1493	26.134	26.333	1433	0.455	0.571
Age	2.644	2.773	1493	2.765	2.773	1429	0.000	0.002
List	0.330	0.000	1493	0.254	0.000	1433	0.000	0.000
Lev	0.513	0.526	1493	0.578	0.560	1433	0.000	0.000
Ebit/sales	-0.151	0.047	1493	-0.040	0.050	1371	0.001	0.024
Ebitda/sales	-0.114	0.057	1493	-0.003	0.063	1371	0.001	0.018
Sga/sales	0.409	0.144	1492	0.332	0.114	1369	0.011	0.000
Ad_promo/sales	0.026	0.002	1493	0.022	0.001	1371	0.045	0.001
Signed Ln(ebit)	10.975	18.274	1493	10.980	17.972	1432	0.994	0.240
Signed Ln(ebitda)	12.178	18.493	1493	12.009	18.147	1432	0.755	0.043
Cogs/sales	0.780	0.830	1334	0.787	0.846	1200	0.494	0.177

Table 14. Multivariate results of the matched sample

This table shows how the supply chain affects profit and cost in the matched sample. The matched sample consists of externally audited firms outside the business group, and is selected to match the supplier and customer in the business group based on size, year and industry. *Supplier_matched* is a dummy that takes a value of 1 if a firm is defined as a supplier within the business group, and 0 if a firm is in the matched sample. *Customer_matched* is a dummy that takes a value of 1 if a firm is defined as a customer within the business group, and 0 if a firm is in the matched sample. Panel A suggests how the supplier affects profit and cost compared to the matched sample of externally audited firms outside the business group. Panel B indicates how the customer affects profit and cost compared to the matched sample. Detailed definitions of other variables are provided in Table 1. T-values are reported in the parenthesis and are based on standard errors clustered at the firm level. ***, **. * indicate significance at 1%, 5%, and 10% level, respectively.

Panel A. Supplier in the business group vs. Matched sample out of business group

	Signed Ln(ebit)	Signed Ln(ebitda)	Ebit/sales	Ebitda/sales	Cogs/sales	Sga/sales	Ad_promo/ sales
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Supplier_matched	1.7922***	1.9401***	0.0826***	0.0624***	0.0612***	-0.1638***	-0.0067***
	(2.878)	(3.250)	(3.616)	(2.875)	(5.637)	(-6.613)	(-3.108)
Size	1.6886***	1.5715***	0.0323***	0.0334***	0.0085*	-0.0388***	0.0007
	(6.082)	(5.739)	(3.212)	(3.440)	(1.793)	(-3.529)	(0.782)
Age	1.4083***	1.5705***	0.0071	0.0010	0.0046	-0.0382**	-0.0014
	(3.125)	(3.538)	(0.439)	(0.066)	(0.648)	(-2.315)	(-0.847)
List	-1.2972	-1.0475	-0.0196	-0.0201	-0.0072	0.0251	0.0031
	(-1.472)	(-1.256)	(-0.852)	(-0.898)	(-0.506)	(0.930)	(0.939)
Leverage	-8.6689***	-7.5833***	-0.3243***	-0.2940***	0.1049***	0.1335*	0.0101*
	(-7.253)	(-6.338)	(-4.043)	(-3.848)	(4.183)	(1.649)	(1.670)
Observations	2,958	2,958	2,892	2,892	2,478	2,887	2,892
R-squared	0.160	0.152	0.074	0.072	0.224	0.149	0.257
year & Ind FE	YES	YES	YES	YES	YES	YES	YES
Clustered by firm	YES	YES	YES	YES	YES	YES	YES

Panel B. Customer in the business group vs. Matched sample out of business group

	Signed Ln(ebit)	Signed Ln(ebitda)	Ebit/sales	Ebitda/sales	Cogs/sales	Sga/sales	Ad_promo/ sales
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Customer_matched	-0.4907	-0.3022	-0.0920*	-0.0927**	-0.0087	0.0549	0.0014
	(-0.669)	(-0.440)	(-1.912)	(-2.049)	(-0.633)	(1.366)	(0.513)
Size	1.4570***	1.6214***	0.0194	0.0200	-0.0006	-0.0122	0.0016
	(5.259)	(6.126)	(0.890)	(0.977)	(-0.103)	(-0.668)	(1.355)
Age	2.1609***	2.2708***	0.1402***	0.1307***	-0.0147	-0.1133***	-0.0052**
	(4.446)	(4.758)	(3.400)	(3.399)	(-1.458)	(-3.293)	(-2.323)
List	0.5005	-0.2945	0.0952*	0.0763	-0.0121	-0.0682	0.0043
	(0.509)	(-0.320)	(1.732)	(1.483)	(-0.660)	(-1.477)	(0.952)
Leverage	-8.4270***	-7.2597***	0.0712	0.0772	0.1110***	-0.1693	-0.0031
	(-6.249)	(-5.365)	(0.536)	(0.614)	(3.904)	(-1.376)	(-0.496)
Observations	2,921	2,921	2,860	2,860	2,530	2,857	2,860
R-squared	0.172	0.175	0.091	0.089	0.270	0.158	0.191
year & Ind FE	YES	YES	YES	YES	YES	YES	YES
Clustered by firm	YES	YES	YES	YES	YES	YES	YES

Table 15. Effect of the law on the relation between supply chain and position

After2015 is an indicator variable that takes a value of 1 if the period after the Article 23-2 of the Fair Trade Act is enforced and 0 otherwise. All control variables are lagged and detailed definitions of control variables are provided in Table 1. T-values are reported in the parenthesis and are based on standard errors clustered at the firm level. ***, **. * indicate significance at 1%, 5%, and 10% level, respectively.

	Dependent variable: Position							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ebit/assets	-0.6071***	-0.5896***	-0.6159***	-0.6252***	-0.6185***	-0.6096***	-0.6052***	-0.4105*
	(-2.967)	(-2.894)	(-2.998)	(-3.038)	(-3.006)	(-2.959)	(-2.965)	(-1.654)
Supplier(BLSM)		-0.2422***						
		(-5.340)						
Supplier(BLSM) x After2015		0.1244**						
		(2.412)						
After2015		-0.0455*	-0.0197	-0.0437	-0.0170	-0.0559*	-0.0168	-0.0095
		(-1.856)	(-0.763)	(-1.470)	(-0.499)	(-1.899)	(-0.537)	(-0.250)
Customer(BMSL)			0.0874**					
			(1.993)					
Customer(BMSL) x After2015			0.0106					
			(0.223)					
Supplier(NS)				-0.1883***				
				(-4.808)				
Supplier(NS) x After2015				0.0575				
				(1.323)				
Supplier(NS>0)					-0.1818***			
					(-4.399)			
Supplier(NS>0) x After2015					0.0100			
					(0.215)			
Sell High						-0.1084***		
						(-2.695)		
Sell High x After2015						0.0807*		
						(1.829)		
Buy High							0.1351***	
							(3.639)	
Buy High x After2015							-0.0017	
							(-0.040)	
Supplier(BS)								-0.2535***
								(-4.132)
Supplier(BS) x After2015								0.0732
								(1.244)
Size	-0.1125***	-0.1154***	-0.1156***	-0.1190***	-0.1195***	-0.1135***	-0.1174***	-0.1254***
	(-7.348)	(-7.543)	(-7.431)	(-7.654)	(-7.685)	(-7.369)	(-7.622)	(-5.910)
Age	-0.1101***	-0.1081***	-0.1057***	-0.1040***	-0.1029***	-0.1102***	-0.1025***	-0.0984***
	(-4.881)	(-4.851)	(-4.617)	(-4.608)	(-4.554)	(-4.862)	(-4.522)	(-3.337)
List	-0.1060*	-0.1250**	-0.1140*	-0.1256**	-0.1196*	-0.1213*	-0.1080*	-0.1307
	(-1.653)	(-1.984)	(-1.782)	(-1.979)	(-1.881)	(-1.910)	(-1.692)	(-1.571)
Leverage	0.0991	0.0937	0.0973	0.0815	0.0865	0.0946	0.0985	-0.1235
	(1.082)	(1.040)	(1.066)	(0.895)	(0.952)	(1.033)	(1.090)	(-0.962)
Observations	5,430	5,430	5,430	5,430	5,430	5,430	5,430	2,705
R-squared	0.454	0.464	0.456	0.462	0.462	0.457	0.459	0.467
Group & Ind FE	YES	YES	YES	YES	YES	YES	YES	YES
Clustered by firm	YES	YES	YES	YES	YES	YES	YES	YES

Chapter 2.

Bribes and Corporate Performance: Evidence from a Quasi-Natural Experiment

1. Introduction

Corruption is a multidisciplinary issue discussed in various fields of social science including political science, sociology, and economics. Although previous literature has defined the term in various ways, most definitions associate corruption with the actions of public officials. For example, Rose-Ackerman (2011) defines corruption as "an illegal payment to a public agent to obtain a benefit that may or may not be deserved in the absence of payoffs". According to this definition, bribery is a typical form of corruption[1]

Effect of corruption on economic outcome and firm performance has been under controversial debate for decades. In general, corruption is considered as having a negative impact on society and the economy as a whole. Mauro (1995) argues that corruption hinders economic development and growth by lowering investment, which is termed as “sanding the wheels”. Paunov (2016) documents that corruption has a negative impact on firms' ownership of quality certificates and the investment in machinery needed to introduce innovations.

On the other hand, some claim that corruption is indispensable and may even be efficient, a perspective referred to as “grease in the wheels”. Lui (1985) argues that corruption allows firms to overcome bureaucratic holdups by allocating government licenses to most efficient firms who can pay the highest bribes. Faccio (2006) reports that political connections are positively correlated to corruption, which in turn increase firm value. This increase in corporate value has been documented even in countries with low-corruption environment (Amore and Bennedsen (2013)).

Cross-sectionally, the effects of corruption may depend on the circumstances of a given firm or country. Since corruption can complement the consequences of a

[1] A formal legal definition of bribery refers to payments paid to public officials in exchange for a specific favor, which is illegal. In this study, we use the term bribery to broadly refer to any gifts or entertainment expenses paid by a company for the benefit of public sector employees, regardless of its legality.

deficient institutional framework, such as weak rule of law or inefficient management (Webb *et al.* (2009)), we may observe more positive effect of corruption in less efficient institutional environment at the country level. At the firm level, corruption may have a positive impact on the profitability of private sector companies who needs to bribe the regulators to avoid regulations, but not on the profitability of state-owned firms which have little incentive to buy off public officials. (Jiang and Nie (2014)). For example, Zeume (2017) finds that the value of U.K. firms declines permanently after the enactment of the U.K. Bribery Act, and the passage of the law also negatively affects the economic activities of U.K. companies in corrupt countries. Despite the positive relationship between corruption and firm value, this evidence is broadly interpreted as being more consistent with rent-seeking than efficiency enhancing in a neoclassical sense.

A key empirical challenge in establishing a causal relationship between bribes and firm performance, however, is the endogeneity of the former. First, there may be a reverse causality between bribes and firm performance. For example, a firm may treat its public sector counterpart as compensation for good past performance. Also, well-performing firms may afford to pay higher bribes, as pointed out by Lui (1985) and Cai *et al.* (2011). In addition, if bribes are positively correlated with unobservable variables that can increase firm performance, the coefficient estimates may be upward biased. Thus, it is crucial to identify bribes that are not affected by corporate performance or other unobservable variables.

In this paper, we attempt to establish a causal link between bribes and firm performance by taking advantage of a unique regulatory change in Korea that prohibits or drastically limits the companies from providing bribes to public sector employees. This regulation, called the Improper Solicitation and Graft Act (hereafter referred to as the anti-graft law), directly affects public servants, lawmakers, teachers and journalists, along with their spouses in receiving gifts or entertainment. The purpose of this law which became effective as of September 28, 2016 is to ensure fair administration of public officials and restore trust in public institutions.

Unlike in U.S., Korea currently prohibits any formal lobbying activity by a third party. In fact, Korea is the only country that forbids formal lobbying by registered lobbyists among the OECD countries. Despite the legal prohibitions, scandals of various illegal lobbying and bribery have persisted for decades. Implicit lobbying through entertainment expenses paid by a company has been widely spread throughout the economy.

Entertainment expenses refer to the amount of money spent by a business operator to pay for entertainment and gifts provided to business counterparts as a token of hospitality, congratulations, or condolences. A bribe is typically defined as "money or favor given or promised in order to influence the judgment or conduct of a person in a position of trust."[2] Entertainment expenses may be considered as simple token of gratitude, but they may well be used as a form of bribe. Following Cai *et al.* (2011), we resort to entertainment expenditure as a proxy for bribes at the firm level.

To address the endogeneity in entertainment expenses, we take advantage of an exogenous variation in entertainment expenses surrounding the anti-graft law. Since this law restricts or prohibits providing hospitality to workers in the *public* sector, we create a *government exposure* measure under the presumption that companies with large sales to the public sector would be more affected by the law. Then, we interact the pre-law enactment government exposure (GE) with an indicator variable for the post-anti-graft period (ANTI GRAFT), and use this term as an instrument for entertainment cost. In other words, we instrument for changes in firm's entertainment expenses by exploiting the differential impact of the anti-graft law depending on the level of government exposure.

We also employ a difference-in-difference (DID) estimation to examine the impact of the law on corporate performance. We assign companies with relatively large sales to the government as the treated group, which are more likely to be

[2] Merriam-Webster dictionary; https://www.merriam-webster.com/dictionary/bribe

influenced by the law which limits entertainment expenses paid for public officials.

The first stage result from the instrumental variable (IV) specification indicates that after the implementation of the anti-graft law, entertainment expenses decrease and this effect is indeed more pronounced for firms in industries with large sales to the government (high GE measure). This result is consistent with our conjecture that government-exposed firms are significantly more likely to be affected by the anti-graft law.

We next regress various measures of firm performance on the predicted value of entertainment expense obtained from the first stage. The result from this second stage estimation indicates that the predicted value of entertainment expense is significantly negatively correlated with firm performance. This finding suggests that bribes may adversely affect corporate outcomes.

In our difference-in-difference analysis, we also find that firms that are more exposed to government sales experience an improvement in various measures of firm performance during the post anti-graft law period. This reduced form analysis also suggests that firms that are likely to have been spending much entertainment expense before the anti-graft law, i.e. high GE firms, improve their performance after the law precisely because they are likely to have cut down their entertainment costs.

We contribute to the vast literature on corruption and firm performance in several ways. First, our sample is likely to reflect an institutional environment where corruption is costly, as suggested by Shleifer and Vishny (1993). They propose two conditions for corruption to adversely affect economic growth. First condition is, decentralization of power which significantly increases the cost of corruption. Under a centralized government, one needs to bribe only one or a few dictators. But under a decentralized government, e.g. post-communist Russia, many bureaucrats must be bribed, which would increase the cost of bribing. Second, the cost of corruption also increases when it has to be kept secret. If the process becomes illegal, any official caught taking bribes will be severely punished. To evade the law, bureaucrats may choose a bidder whose bribery technique is hard to detect even if he/she is less

efficient.

Korea is well-suited to test the implications presented in Shleifer and Vishny (1993). Korea has gone through a massive decentralization since the 1990s when the democratic government began to take power after 32 years of authoritarian rule by the military regime. In addition, since Korea prohibits formal or official lobbying, implicit lobbying may proceed under the table, which increases the level of secrecy. These conditions allow us to test whether corruption adversely affect the economy precisely when power is decentralized and bribes need to be kept secret.

Second, we provide further evidence on the effectiveness of legislation to limit entertainment expenditures. While we may casually expect that this legal capping will result in a decrease in total entertainment spending, Che and Gale (1998) and Drazen *et al.* (2007) suggest theoretical argument and empirical evidence that a unilateral decrease in total bribes following a legal cap may not be so straightforward. For example, if the upper limit set by the law is binding for high valuation lobbyists, it allows the low-valuation lobbyist who did not try lobbying before to newly engage in lobbying, which could increase the overall lobbying amount. Our study sheds further light on this debate.

Finally, and most importantly, we make use of an exogenous change in entertainment expenditures to tease out the causal effect of bribes on firm performance. A few previous studies also report some relationship between entertainment expenses and firm performance. However, these results are close to correlation rather than causal relationship due to inadequate treatment of potential endogeneity. In contrast, our empirical strategy extracts exogenous variations of entertainment expenses based on a new law affecting these expenditures.

This paper is organized as follows. Section 2 provides a detailed description of the Improper Solicitation and Graft Act in Korea. Section 3 discusses the empirical strategies and our research design. Section 4 describes the data and explains the key variables used in this study. Section 5 presents our main findings and discusses additional robustness tests. We conclude in Section 6.

2. The Improper Solicitation and Graft Act in Korea

The Improper Solicitation and Graft Act, more commonly known as the Kim Young-ran act named after a former Supreme Court Justice who came up with the original bill, is a comprehensive law to prohibit improper solicitations and the receipt of graft, which has taken effect on September 28, 2016. According to the document provided by National Law Information Center, the purpose of this Act is to ensure that public services are provided in a fair manner and to secure public confidence in government institutions by forbidding improper solicitations to public officials and relevant persons and by prohibiting them from accepting financial or other advantages.[3] Contents of the Improper Solicitation and Graft Act documented by Anti-Corruption and Civil Rights Commission are as follows.

2.1 Scope of application

The anti-graft act is applicable to both organizations and individuals. It applies to all public institutions including constitutional institutions, central administrative agencies, local governments, municipal or provincial offices of education, and public service-related organizations. In addition, private and public schools of various levels, educational foundations under Private School Act, and media companies under Article 2.12 of the Act on Press Arbitration and Remedies are also subject to the Act. The law also applies to public officials or individuals performing public duties, and their spouses.

2.2 Prohibition of improper solicitations

The concept of improper solicitations is that no one should solicit, directly or through a third party, a public official or relevant person performing his or her duties.

[3] National Law Information Center, http://www.law.go.kr/LSW/eng/engLsSc.do?menuId=2&section=lawNm&query=The+Improper+Solicitation+and+Graft+Act&x=24&y=26#liBgcolor1

A total of 15 types of improper solicitations are stipulated to explicitly explain which acts constitute the acts of improper solicitation. Moreover, a public official or relevant person who performs his or her duties as directed by an improper solicitation should be punished by imprisonment for not longer than two years or by a fine not exceeding 20 million won.

If a public official or relevant person receives an improper solicitation, he or she should clearly express an intention to refuse the solicitation and report the fact to the head of the concerned agency, if such solicitations repeatedly occur.

2.3 Prohibition of acceptance of financial or other advantages

A. Prohibition of acceptance of financial or other advantages by public officials and their spouses.

A public official or relevant person should be subject to criminal punishment if he or she receives financial or other advantages in excess of one million KRW, roughly one thousand USD at a time or three million KRW, roughly three thousand USD during a fiscal year from the same person, regardless of his or her duties or the title of such offer. Public officials are allowed to receive food and beverage, only up to 30,000 KRW, roughly 30 USD. Congratulatory or condolence money provided for purposes of social relationships or rituals can be up to 50,000 KRW, but the wreaths and condolence flowers that replace them are limited to 100,000 KRW.

B. Limits on the amount of honoraria for outside lectures

If a public official or relevant person intends to conduct an outside lecture duties, he or she should report it in advance and should not accept an honorarium exceeding the limits provided under Presidential Decree. If a public official or relevant person receive an honorarium exceeding the amount as prescribed in Presidential Decree, he or she should report the fact to the head of the concerned agency and immediately return the excessive amount to the provider.[4]

[4] Document from Anti-Corruption and Civil Rights Commission

3. Empirical Strategy

Our goal is to come up with an empirical specification that examines how bribes may affect firm performance. We resort to corporate entertainment expenditure as a proxy for bribes in a broad sense. The entertainment cost is the expense that the company spends in the process of performing the business activities, and firms may claim a part of it as tax deductible expense up to a certain limit.[5] Although these entertainment expenditures may be legal, as long as the treated individual does not directly provide a favor in return, they may well leave an impression which may influence the decisions of the treated in the future over a longer term. And this is precisely the reason why firms are willing to pay these entertainment expenses.

A simple approach would be to estimate β in the following equation (1) using ordinary least square (OLS).

$$Y_{\mathrm{i,t}} = \beta \cdot ENT_{\mathrm{i,t}} + \sum controls_{i,t} + \mu_{\mathrm{j}} + \eta_t + \delta_{\mathrm{y}} + \epsilon_{i,t} \quad (1)$$

where $Y_{\mathrm{i,t}}$ is firm i's performance measure in quarter t. $ENT_{\mathrm{i,t}}$ is firm i's entertainment expenditure in quarter t. μ_j is industry fixed effect capturing any time-invariant differences across the different industry at 2digit KSIC code. η_t is quarter dummy to control seasonality and δ_{y} is year fixed effect, measuring any common variation in firm performance each year.

However, this specification is subject to an endogeneity problem. For example, Lee (2008) investigates the effects of corporate performance on entertainment expenses, where the latter may be considered as a reward for past performance. Even if entertainment expenses and firm performance are positively related, there may well be a reverse causality. In addition, if the entertainment costs are positively correlated with unobservable variables that can increase the performance of the firm, the coefficient value can be upward biased.

[5] Current limit is 12 million KRW, or roughly 12,000 USD per year for general firms. Small and medium-sized enterprises prescribed by Presidential Decree may claim up to 66 million KRW, or roughly 66,000 USD.

3.1. Instrumental variable analysis

In order to address this potential endogeneity, our main empirical strategy is to extract the exogenous variations of entertainment expenses following the implementation of the new law affecting entertainment expenses. Since this law restricts or prohibits providing hospitality to workers in the public sector, we constitute a government exposure measure under the hypothesis that companies with high sales to the public sector would be more affected by the law. Therefore, interaction between the pre-law enactment government exposure (GE) and an indicator variable equal to one in the post-anti-graft period (ANTI GRAFT) is used as an instrument for endogenous entertainment cost. In other words, we instrument for changes in firm's entertainment expenses by exploiting the differential impact of the anti-graft law depending on the level of government exposure. We estimate the first-stage specification as follows:

$$ENT_{\mathrm{i,t}} = \gamma \cdot \mathrm{ANTI\ GRAFT\ x\ GE_j} + \tau \cdot \mathrm{ANTI\ GRAFT} + \sum controls_{i,t} + \eta_t + \epsilon_{it} \quad (2)$$

where $\mathrm{ANTI\ GRAFT}$ is an indicator variable that is equal to one for the post-regulation period, and $\mathrm{GE_j}$ captures the level of industry exposure to government purchases. We then use $\widehat{ENT}_{i,t}$ to test for the effect of entertainment cost on firm performance using the following second-stage specification:

$$Y_{\mathrm{i,t}} = \beta \cdot \widehat{ENT}_{i,t} + \sum controls_{i,t} + \mu_{\mathrm{j}} + \eta_t + \delta_{\mathrm{y}} + \epsilon_{i,t} \quad (3)$$

where equation (3) provides the 2SLS-IV estimates of the impact of corruption and β captures the causal effect of entertainment expenditure on firm performance.

3.2. Difference-in-difference analysis

Difference-in-difference (DID) is a quasi-experimental econometric technique that measures the effect of a treatment at a given period in time. We resort to industry-

level sales exposure to government purchases, a continuous variable, as a measure of treatment. That is, we examine how the relationship between government exposure and firm performance may change over time following the anti-graft law. Specifically, we run the following regression.

$$Y_{\mathrm{i,t}} = \gamma \cdot \mathrm{ANTI\ GRAFT\ x\ GE_j} + \mathrm{GE_j} + \sum controls_{i,t} + \eta_t + \delta_{\mathrm{y}} + \epsilon_{it} \quad (4)$$

where $Y_{\mathrm{i,t}}$ is firm *i*'s performance measure in quarter *t*. $\mathrm{ANTI\ GRAFT}$ is an indicator variable for post-regulation period, and $\mathrm{GE_j}$ captures the level of industry exposure to government expenditure. η_t is quarter dummy to control for seasonality and δ_y is year fixed effects, measuring any common variation in firm performance each year. Equation (4) is essentially a reduced form specification without the endogenous variable, namely entertainment expense where γ captures the relationship between government exposure and corporate performance since the enactment of the anti-graft law.

4. Data

4.1. Data Sources and Sample Selection

This section describes the data sources used for the empirical analysis. Our sample consists of non-financial firms listed on the Korea Stock Exchange and registered with the Korea Securities Dealers Automated Quotation (KOSDAQ). To construct our main and control variables, we obtain the companies' quarterly financial data from the DataGuide provided by FnGuide and industrial input-output tables from the Economic Statistical System (ECOS) provided by the Bank of Korea. Since we use quarterly data, companies with fiscal month-ends other than March, June, September, and December are excluded from the sample for the purpose of matching accounting periods. The final sample includes 1,816 firms in the standard 2-digit Korean industrial classifications from 2012 to 2018.6. We start our sample

period from 2012, after the introduction of IFRS, to maintain consistency of accounting standards.

4.2. Variable Construction

In this section, we explain how we constructed each variable used in the analysis. Table 1 briefly summarizes the definition of the variables.

4.2.1. Measure of Bribery

We resort to entertainment cost reported in quarterly statements as a broad proxy for the level of bribery. As a part of selling, general, and administrative expenses (SG&A), entertainment expenditure generally refers to expenses or goods that are paid to clients reflecting hospitality, fellowship, or reward related to the business of the company. Although this expense is tax deductible up to certain level, it may well be used as a form of bribe in a broad sense. Thus, we resort to expenditure on entertainment scaled by assets as a proxy for bribery.

4.2.2. Firm Performance Measure

Our measures of operating performance are return on assets (ROA), sales, operating income, and net income. In addition, Tobin's q and Market to Book ratio are used to measure firm value. Basically, all variables are computed for firm *i* over its quarter *t*. However, we aggregate quarterly performance data to calculate annual performance, which includes up to the next four quarters, including the current quarterly performance.

4.2.3. Government Exposure Measure

Following Belo *et al.* (2013), we measure the industry-level exposure to government spending as the ratio of the amount purchased by the government to total production of a given industry based on the input-output table. This measure reflects how much of the industry's total output is sold to the government sector. Government exposure measure is our key instrument variable when extracting exogenous

variations of entertainment expenses.

The components of this measure are extracted from the input-output table provided by the Bank of Korea. This is the matrix table showing the process in which outputs produced in each industry are directly or indirectly consumed by final users. The final demand group consists of consumption, investment and exports. Consumption is divided into private consumption expenditure and government consumption expenditure. Investment consists of private fixed capital formation, government fixed capital formation, inventory variation, and net acquisition of valuables. Among these final users, we select government expenditure and government fixed capital formation to construct government spending at the two-digit Korean standard industrial classification (KSIC) level.

The input–output accounts provides the industry classification based on I–O industry codes that do not exactly match Korean standard industrial classification (KSIC). To match I–O industry codes with the Korean standard industrial classification, we need to adjust both codes. There are 82 subdivisions of I-O industry code and 77 subdivisions of Korea's standard industry classification at the two digits level. In order to match these two codes, we rearrange I-O industry codes into standard industry classification codes by manually checking the industry names.

4.2.4. Control Variables

We control for various firm characteristics that have been identified in the previous literature to affect a firm's future performance. All variables are computed for firm *i* over its fiscal quarter *t*. The control variables include (1) firm size, SIZE, measured by the natural logarithm of total assets in KRW; (2) asset growth, ATG, measured by growth rate of total asset over the previous quarter; (3) leverage, LEV, measured as the ratio of book value of total debt to total assets; (4) investing activities, ICF, measured by Cash outflow from investing activities scaled by total assets; (5) investment in innovation, RND, measured by research and development

expenditures scaled by total assets; (6) investment in advertisement and promotion, ADPROMO, measured by sum of advertisement and promotion expense scaled by total assets.

--- Insert Table 1 ---

4.3. Descriptive statistics

Table 2 contains the summary statistics of the key variables for our firm-quarter observations. To minimize the impact of outliers, all continuous variables are winsorized at the top and bottom 1% of each variable's distribution. The mean (median) value of our key independent variable, ENT and GE, are 0.06% (0.03%) and 9.21% (5.89%), respectively. On average 9.21% (5.89%, median) of the total industrial output is purchased for final use by the government sector. The distribution of industry-specific measures of government exposure (GE) is given in table A1 in the appendix. The government exposure measure (GE) is classified by 61 industries from KSIC 2digit industry classification. Since the industry classification is different between KSIC and input-output account, some industries are subdivided into 3 digits to match codes of KSIC and input-output account.

Even though we account for outliers through winsorizing, a gap between mean and median of our variables suggests that distribution is skewed toward the right. Moreover, since expenses are only measured over a quarter rather than a full year, the value of ENT is relatively small.

--- Insert Table 2 ---

Table 3 presents the correlation matrix between the main entertainment measure (ENT), government exposure measure (GE), various firm performance measures, and all control variables used in this study. Table 3 shows that ENT_t and SALES_t are positively correlated while the correlation between ENT_t and OI_t or NI_t turns out to be negative, consistent with previous literature. This relationship is robust

between ENT_t and 1-quarter lead variables, $SALES_{t+1}$, OI_{t+1} and NI_{t+1}.

--- Insert Table 3 ---

5. Empirical results

We first conduct univariate analysis to test whether there is actually a decrease in entertainment expenses after the introduction of the Improper Solicitation and Graft Act. Panel A in Table 4 shows the changes in the mean of total entertainment expenses and entertainment expenses scaled by assets, sales, and SG & A expenses, respectively, before and after the enactment of the anti-graft law. We note that all measures of entertainment costs have decreased after the introduction of anti-graft law, and the decrease is statistically significant.

Since the anti-graft law restricts the provision of hospitality to employees in the public sector, we hypothesize that companies with high exposure to the government will be affected more by the law. Figure 1 shows that the drop in entertainment costs has been noticeable since September 2016, when the law was enacted. This is more conspicuous when we divide the sample into quartiles based on GE measure. Specifically, we observe a significant decrease in the GE quartile 4 group compared to GE quartile 1.

Panel B in Table 4 reports the result of a univariate test to investigate the difference in entertainment costs before and after the anti-graft law for different quartiles of government exposure levels. The results indicate that decline in entertainment expenses is the largest in the fourth quartile of government exposure after the law was enacted, consistent with the results reported in Figure 1. Based on these results, we confirm that the influence of the anti-graft law is larger for firms with higher government exposure.

--- Insert Table 4 ---

--- Insert Figure 1 ---

5.1. Baseline specification

From Table 5, our important estimates of the impact of entertainment costs on firm performance are presented. We start with the OLS estimates. As documented in the previous literature, the relationship between sales and entertainment cost is positive while operating income (net income) and entertainment cost has a negative relationship. Table 5 reports the results of OLS regressions of various firm performance on entertainment cost. Similar to existing literature, column (1) and (5) in Table 5 shows the significantly positive coefficient of regression of SALES_t and SALES_{t+1} on ENT_t. The results shown in Column (2), (3) and (5)-(9) are also consistent with previous studies, suggesting the negative coefficient of regression of OI, NI on ENT. As discussed earlier in section 2, The OLS correlation between entertainment cost and firm performance can be biased in either direction relative to the causal relationship of entertainment cost to firm performance. Our subsequent analysis suggests that in our setting, OLS estimates is upward biased.

--- Insert Table 5 ---

5.2. Endogeneity control

To address endogeneity concerns arising from unobservable factors or reverse causality, we estimate the two-stage least squares regression using IVs framework. We use the Improper Solicitation and Graft Act as an exogenous shock which affects entertainment cost. By using this shock as IV, we can exploit exogenous variation in entertainment cost. Since this law prohibits providing entertainment to employees in the public sector, it is expected to be more influenced by companies with more sales to the government.

Table 6 shows 2SLS results, using interaction between the pre-law enactment

government exposure (GE) and an indicator variable equal to one in the post-anti-graft period (ANTI GRAFT) to instrument for entertainment cost. The column (1) in Table 6 shows the relationship between entertainment cost and our instrument variables from estimating first stage of 2SLS indicating strong outcomes: After the implementation of the anti-graft law, entertainment expenses decrease and firms in industries with high sales to the government (high GE measure) experienced a greater decline in entertainment costs compared to before the law was enacted. The evidence confirms that government-exposed firms are significantly more likely to be affected by the anti-graft law. In addition, the F-statistic of the first stage shows 40.83, which implies that our instrument variable is not weak.

Columns (2) - (9) in Table 6 are the second stage in which the exogenous variations of entertainment cost are extracted using the shock from the first stage, and regression analysis is performed with various firm performance measures. In column (2), the coefficient of fitted ENT is significantly negative, unlike the results of the OLS analysis in Table 5. After dealing with the possible endogeneity problem, the exogenous variation of entertainment cost is negatively associated with sales. In other words, the previous results shown in Table 5 as well as existing literatures do not imply causation but a correlation, which is exactly correlation matrix presents in Table 3, and the coefficient values shown in OLS are proved to be upward bias. Other performance measures, except for sales, show negative or insignificant results, similar to OLS.

--- Insert Table 6 ---

In order to check the robustness, the government exposure measure is replaced by the value divided by the quartile instead of the continuous variable. We expect firms in quartile 4 in terms of government exposure to gain in value and the results are shown in Table 7. As we expected, column (1) shows that the estimated coefficient of government exposure quartile 4 is only significant at the 1% level while government exposure quartiles 2 and 3 do not exhibit differential value effects

in the first stage. The results of second stage is similar to table 6.

--- Insert Table 7 ---

The main IVs specifications shows that entertainment cost has a negative impact on firm performance which is an opposite result to previous literature. Now we test for the effect of anti-graft on firm performance using differences-in-differences specifications. As discussed earlier, since the anti-graft law prohibited or drastically limited the companies practice of providing 'entertainment' to public sector employees, the law would be expected to disproportionately affect those firms with substantial ex ante government exposures. To conduct these tests, we interact the pre-law enactment government exposure (GE) with an indicator variable equal to one in the post-anti-graft period.

We then conduct difference-in-differences analysis to compare the before and after application of the law to analyze how this law affects the corporate performance. We analyze the sales exposure of the government as the treated group, which is likely to be the most influenced by the law which restricts the upper limit of entertainment expenses to public officials. Table 8 shows that the coefficient of ANTI-GRAFT x GE has significantly positive. In addition to profitability measure such as sales, operating income, and net income, it also shows a meaningful gain in Tobin's q and MB ratio as a firm value. The results show that firm with high government exposure improve their performance following the enactment of anti-graft law. These results confirm that firms in industries with high sales to the government (high GE measure) increased in value after anti-graft law, which is consistent with the idea that anti-graft law has a positive effect on firm performance.

--- Insert Table 8 ---

6. Conclusion

This paper investigates the causal effects of bribes and corporate performance based on a quasi-natural experiment. Since September 2016, Korea has implemented the Improper Solicitation and Graft Act, which prohibits or drastically limits the companies practice of providing 'entertainment' to public sector employees. Based on the univariate analysis, we first confirm that the influence of the anti-graft law is larger for firms with higher government exposure.

To address potential endogeneity concerns, and correctly identify the effect of bribery on corporate outcomes, we exploit the enactment of the law as an exogenous shock to firms' entertainment expenditure to treat their partners. Based on this shock, we conduct both an instrumental variable (IV) approach and difference-in-difference analysis. The instrumental variable specification reveals that entertainment cost has a negative impact on firm performance. In difference-in-difference analysis, we find that firms that cut down on entertainment costs after anti-graft law enactment experience an improvement in performance.

Our findings suggest that bribes may have a negative effect on firm performance, which is contrary to some of the previous studies. While a few previous studies report some relationship between bribes and firm performance, these are mostly correlations, our key contribution is to establish a causal relationship directly addressing potential endogeneity. Our study also suggests that the Improper Solicitation and Graft Act has a positive effect on firm performance. This implies that entertainment expenditures may have been a deadweight cost that firms had to bear in the past, which can now be avoided due to the new law. Our study also provides insights for regulators who are seeking to adopt some form of anti-corruption measures. In our sample at least, firms seem to benefit from such regulations.

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Figure 1. Difference in average entertainment ratio between GE

This graph shows the difference between the average entertainment ratio (ENT / AT) for GE measure for the first quarter and fourth quartiles from 2012 1Q to 2018 2Q, where GE represents the level of industry exposure to government spending as the proportion of the industry's total output being purchased by the government sector for final use.

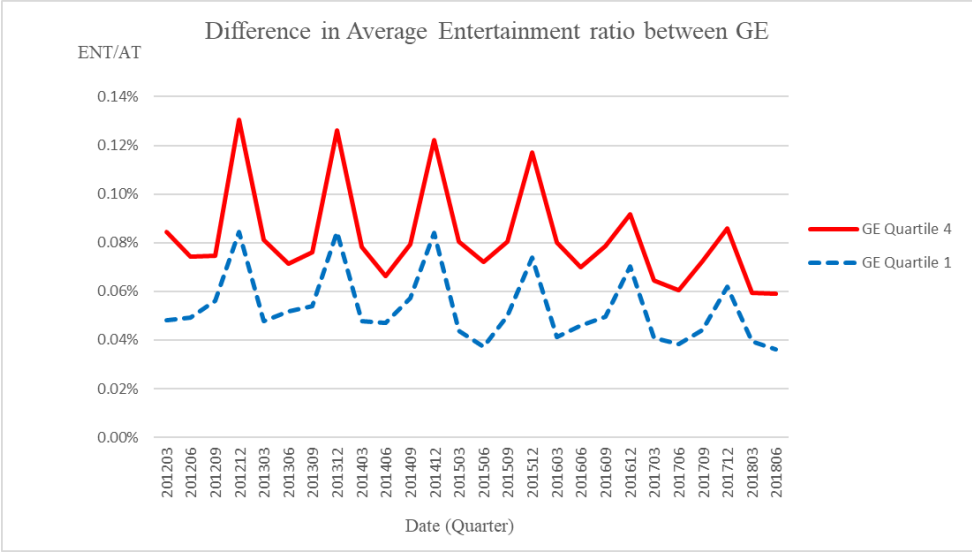

Table 1. Variable Definitions

This table provides the definitions of the variables used in this study.

Variable	Definition
GE	Measure of Government Exposure; According to Belo el al.(2013), the level of industry exposure to government spending is measured as the proportion of the industry's total output being purchased by the government sector for final use to total industrial production, using industry level data from input-output account which is obtained from the Economic Statistical System (ECOS) provided by the Bank of Korea.
ANTI-GRAFT	A dummy variable indicating whether the period after the anti-graft law is enforced, 0 otherwise
Measure of Entertainment costs	
ENT	Ratio of entertainment cost to total asset
ENT/SGA	Ratio of entertainment cost to sales, general, and administrative expense(SG&A)
ENT/SALES	Ratio of entertainment cost to sales
SGA	Ratio of sales, general, and administrative expense(SG&A) to total asset
SGA/SALES	Ratio of sales, general, and administrative expense(SG&A) to sales
Measure of Performance	
SALES	Ratio of sales to total asset
OI	Ratio of operating income to total asset
NI	Ratio of net income to total asset
Tobin's Q	Ratio of market value of assets to book value of assets. Market value of assets is estimated by [book value of debt + book value of preferred stock + market value of common stock]
MBratio	Mbratio Market value of common stock / Book value of common stock
	MBratio=(last_prc*shrout)/sum(com_cap, cap_sup, ern_sup, def_lib, self_stk);
Control variables	
SIZE	Natural logarithm of total assets
ATG	growth rate of total asset over the previous quarter
LEV	Ratio of book value of total debt to total asset
ICF	Cash outflow from investing activities scaled by total asset
RND	Ratio of research and development expense to total asset
ADPROMO	Sum of advertisement and promotion expense scaled by total asset

Table 2. Summary Statistics

This table reports summary statistics for the sample firm-quarter observations constructed using a sample of Korean public firms. The sample observations are from 2012. 1Q to 2018. 2Q. GE is a measure of government exposure which represents the level of industry exposure to government spending as the proportion of the industry's total output being purchased by the government sector for final use. ANTI_GRAFT is a dummy variable indicating whether the period after the anti-graft law is enforced, 0 otherwise. Detailed definitions of control variables are provided in Table 1.

Variable	N	MEAN	SD	P5	P25	P50	P75	P95
GE	31940	0.0921	0.1073	0.0200	0.0329	0.0589	0.0978	0.4649
ANTI_GRAFT	31962	0.2974	0.4571	0.0000	0.0000	0.0000	1.0000	1.0000
Measure of Entertainment costs								
ENT/AT	31527	0.0006	0.0009	0.0000	0.0001	0.0003	0.0007	0.0024
ENT/SGA	31957	0.0223	0.0259	0.0010	0.0060	0.0138	0.0286	0.0747
ENT/SALES	31882	0.0048	0.0087	0.0001	0.0007	0.0018	0.0049	0.0194
SGA/AT	31523	0.0361	0.0395	0.0050	0.0133	0.0237	0.0418	0.1141
SGA/SALES	31882	0.2583	0.3321	0.0312	0.0741	0.1369	0.3033	0.9028
Measure of Performance								
$SALES_t$	31523	0.2072	0.1374	0.0269	0.1139	0.1824	0.2705	0.4768
OI	31523	0.0070	0.0248	-0.0350	-0.0022	0.0071	0.0185	0.0463
NI	31523	0.0006	0.0384	-0.0641	-0.0058	0.0055	0.0170	0.0448
Tobin's Q	31552	1.4399	1.0384	0.5884	0.8544	1.1155	1.6218	3.3981
MBratio	30526	1.7741	1.7463	0.3995	0.7520	1.2162	2.0896	5.1108
$SALES_{t+1}$	30227	0.2046	0.1352	0.0264	0.1133	0.1809	0.2673	0.4645
OI_{t+1}	30227	0.0069	0.0241	-0.0336	-0.0021	0.0069	0.0181	0.0450
NI_{t+1}	30227	0.0017	0.0358	-0.0551	-0.0051	0.0056	0.0170	0.0435
Control variables								
SIZE	31552	25.7587	1.2508	24.0487	24.9248	25.5745	26.4258	28.0424
ATG	31241	0.0138	0.0922	-0.1122	-0.0236	0.0061	0.0396	0.1586
LEV	31552	0.3948	0.2144	0.0798	0.2242	0.3846	0.5441	0.7636
ICF	31523	0.0554	0.0917	-0.0005	0.0071	0.0229	0.0642	0.2417
RND	31523	0.0038	0.0074	0.0000	0.0000	0.0003	0.0041	0.0193
ADPROMO	31523	0.0033	0.0099	0.0000	0.0000	0.0001	0.0014	0.0177

Table 3. Correlation Matrix

Table 3 presents the correlation matrix between the main entertainment measure (ENT), government exposure measure (GE), various firm performance measures, and all control variables used in this study. Detailed definitions of variables are provided in Table 1. ***, **. * indicate significance at 1%, 5%, and 10% level, respectively.

	GE	ENT	SALES	OI	NI	Tobin's Q	MB	LEV	ICF	RND	ADPROMO	ATG	SALES+1	OI+1	NI+1
GE	1														
ENT	0.121***	1													
SALES	-0.104***	0.100***	1												
OI	0.0171**	-0.0620***	0.338***	1											
NI	-0.00981	-0.102***	0.242***	0.714***	1										
Tobin's Q	0.216***	0.167***	-0.0633***	0.0163**	-0.0628***	1									
MB	0.199***	0.160***	-0.0304***	-0.0233***	-0.106***	0.896***	1								
LEV	-0.0486***	-0.0353***	0.250***	-0.184***	-0.237***	-0.0966***	0.0467***	1							
ICF	0.0227***	0.0777***	-0.0333***	0.0254***	0.00911	0.186***	0.152***	-0.173***	1						
RND	0.0614***	0.229***	0.00529	-0.0288***	-0.0456***	0.212***	0.200***	-0.105***	0.0982***	1					
ADPROMO	0.123***	0.136***	0.142***	0.0642***	0.0248***	0.133***	0.131***	-0.0267***	0.00449	0.0448***	1				
ATG	0.0117*	0.0721***	0.179***	0.254***	0.308***	0.0775***	0.0767***	-0.0316***	0.262***	0.0423***	0.0199***	1			
SALES+1	-0.100***	0.0668***	0.855***	0.192***	0.149***	-0.0597***	-0.0233***	0.246***	-0.0625***	-0.0188**	0.120***	0.0341***	1		
OI+1	0.0232***	-0.0658***	0.207***	0.571***	0.421***	0.0233***	-0.00267	-0.161***	0.0268***	-0.0262***	0.0590***	0.138***	0.330***	1	
NI+1	-0.0127*	-0.0624***	0.164***	0.413***	0.332***	-0.0185**	-0.0495***	-0.180***	0.0251***	-0.00912	0.0339***	0.0952***	0.237***	0.719***	1

Table 4. Univariate results

Panel A in Table 4 shows the changes in the mean of total entertainment expenses and entertainment expenses scaled by assets, sales, and SG & A expenses, respectively, before and after the enforcement of the anti-graft law. Panel B in Table 4 reports the result of a univariate test to investigate the difference in entertainment costs before and after the anti-graft law according to each quintile of government exposure (GE) levels, where GE represents the level of industry exposure to government spending as the proportion of the industry's total output being purchased by the government sector for final use.

Panel A.

	Before	After	Difference	
ENT measure	ANTI_GRAFT=0	ANTI_GRAFT=1	After - Before	(t-value)
ENT (mil.)	97.700	81.900	-15.800	(-10.07)
ENT/AT (%)	0.067	0.055	-0.011	(-10.94)
ENT/SALES (%)	0.494	0.464	-0.030	(-2.85)
ENT/SGA (%)	2.340	1.960	-0.380	(-12.57)

Panel B.

ENT/AT / GE (%)	Before	After	Difference	
	ANTI_GRAFT=0	ANTI_GRAFT=1	After - Before	(t-value)
Quartile 1	0.056	0.049	-0.008	(-4.55)
Quartile 2	0.067	0.055	-0.013	(-6.24)
Quartile 3	0.054	0.047	-0.007	(-3.73)
Quartile 4	0.089	0.071	-0.018	(-7.14)
4Q-1Q	0.033	0.023	-0.010	
(t-value)	(17.34)	(9.59)	(-3.18)	

Table 5. OLS Regression

Table 5 reports the results of OLS regressions of various firm performance on entertainment cost. ENT is a ratio of entertainment cost to total asset; OI is a ratio of operating income to total asset; NI is a ratio of net income to total asset; Tobin's Q is a ratio of market value of assets to book value of assets; MBratio is a ratio of value of common stock to book value of common stock. Detailed definitions of control variables are provided in Table 1. ***, **. * indicate significance at 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	SALES	OI	NI	Tobin's Q	SALES+1	OI+1	NI+1	MBratio
ENT	12.476***	-1.029**	-2.025***	13.635	10.405***	-1.024**	-1.257**	12.128
	(4.986)	(-2.297)	(-3.473)	(0.571)	(4.196)	(-2.310)	(-2.412)	(0.331)
ICF	-0.076***	-0.014***	-0.036***	1.266***	-0.057***	-0.004	-0.004	1.855***
	(-4.565)	(-4.382)	(-7.961)	(7.792)	(-3.518)	(-1.157)	(-0.994)	(7.184)
ATG	0.295***	0.069***	0.130***	0.237***	0.064***	0.034***	0.036***	0.480***
	(22.297)	(24.157)	(28.107)	(2.745)	(5.157)	(14.542)	(10.671)	(3.093)
RND	0.898***	-0.027	-0.047	14.633***	0.747***	-0.009	0.049	25.669***
	(3.225)	(-0.489)	(-0.695)	(5.185)	(2.655)	(-0.158)	(0.764)	(5.817)
ADPROMO	2.124***	0.170***	0.157***	8.148***	1.937***	0.164***	0.140***	13.425***
	(7.439)	(3.857)	(3.090)	(3.844)	(6.671)	(3.693)	(2.714)	(3.652)
LEV	0.111***	-0.027***	-0.053***	0.183**	0.105***	-0.023***	-0.037***	1.633***
	(9.205)	(-17.064)	(-25.524)	(2.423)	(8.500)	(-14.300)	(-18.822)	(11.484)
SIZE	0.005*	0.004***	0.006***	-0.120***	0.003	0.004***	0.005***	-0.232***
	(1.726)	(11.907)	(13.436)	(-6.457)	(1.266)	(10.947)	(11.999)	(-7.594)
Quarter dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
clustered by firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	31,218	31,218	31,218	31,218	29,935	29,935	29,935	30,357
R-squared	0.269	0.180	0.254	0.261	0.229	0.127	0.126	0.259

Table 6. 2SLS Regression

Table 6 shows 2SLS results, using interaction between the pre-law enactment government exposure (GE) and an indicator variable equal to one in the post-anti-graft period (ANTI GRAFT) to instrument for entertainment cost. ENT is a ratio of entertainment cost to total asset; GE is the level of industry exposure to government spending as the proportion of the industry's total output being purchased by the government sector for final use; OI is a ratio of operating income to total asset; NI is a ratio of net income to total asset; Tobin's Q is a ratio of market value of assets to book value of assets; MBratio is a ratio of value of common stock to book value of common stock. Detailed definitions of control variables are provided in Table 1. The column (1) in Table 6 is the result from first stage of 2SLS which shows the relationship between entertainment cost and our instrument variables. Columns (2) - (9) in Table 6 are the second stage in which the exogenous variations of entertainment cost are extracted using the shock from the first stage, and regression analysis is performed with various firm performance measures. ***, **. * indicate significance at 1%, 5%, and 10% level, respectively.

	First Stage	Second Stage							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Ent_at	SALES	OI	NI	Tobin's Q	SALES+1	OI+1	NI+1	MBratio
$\widehat{ENT}$		-0.708***	-0.104*	-0.199***	-2.809	-0.632***	-0.101**	0.069	-4.620
		(-3.598)	(-1.939)	(-2.602)	(-1.086)	(-3.432)	(-2.156)	(1.153)	(-1.097)
ANTI-GRAFT x GE	-0.043***								
	(-2.614)								
ANTI-GRAFT	-0.010***								
	(-5.585)								
GE	0.099***								
	(3.953)								
ICF	0.006	-0.072***	-0.013***	-0.035***	1.283***	-0.053***	-0.003	-0.004	1.884***
	(0.616)	(-4.301)	(-4.096)	(-7.566)	(7.840)	(-3.274)	(-0.919)	(-1.091)	(7.248)
ATG	0.078***	0.359***	0.076***	0.143***	0.462**	0.120***	0.041***	0.029***	0.843**
	(9.994)	(18.390)	(15.303)	(19.472)	(2.178)	(6.726)	(9.833)	(5.432)	(2.412)
RND	1.648***	2.274***	0.127	0.247*	19.485***	1.966***	0.140	-0.086	33.470***
	(6.851)	(5.337)	(1.155)	(1.716)	(3.742)	(4.795)	(1.397)	(-0.700)	(4.003)
ADPROMO	0.921***	2.889***	0.257***	0.323***	10.866***	2.617***	0.249***	0.065	17.806***
	(3.456)	(8.241)	(3.955)	(3.676)	(3.591)	(7.501)	(3.990)	(0.836)	(3.435)
LEV	0.015***	0.124***	-0.025***	-0.051***	0.228***	0.116***	-0.021***	-0.038***	1.705***
	(2.615)	(10.083)	(-14.623)	(-21.738)	(2.643)	(9.213)	(-12.311)	(-17.514)	(11.187)
SIZE	-0.024***	-0.015***	0.002	0.001	-0.191***	-0.014***	0.002	0.007***	-0.347***
	(-16.341)	(-2.771)	(1.208)	(0.751)	(-2.913)	(-2.735)	(1.254)	(4.599)	(-3.230)
Quarter dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
industry dummy	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
clustered by firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	31,218	31,218	31,218	31,218	31,218	29,935	29,935	29,935	30,357
R-squared	0.216	0.265	0.179	0.253	0.261	0.226	0.126	0.125	0.259

Table 7. 2SLS Regression (Robustness)

In Table 7, the government exposure measure (GE) is replaced by the value divided by the quartile instead of the continuous variable for the robustness check. Table 7 shows 2SLS results, using interaction between the pre-law enactment government exposure (GE) for each quartile and an indicator variable equal to one in the post-anti-graft period (ANTI GRAFT) to instrument for entertainment cost. ENT is a ratio of entertainment cost to total asset; GE is the level of industry exposure to government spending as the proportion of the industry's total output being purchased by the government sector for final use; OI is a ratio of operating income to total asset; NI is a ratio of net income to total asset; Tobin's Q is a ratio of market value of assets to book value of assets; MBratio is a ratio of value of common stock to book value of common stock. Detailed definitions of control variables are provided in Table 1. The column (1) in Table 6 is the result from first stage of 2SLS which shows the relationship between entertainment cost and our instrument variables. Columns (2) - (9) in Table 6 are the second stage in which the exogenous variations of entertainment cost are extracted using the shock from the first stage, and regression analysis is performed with various firm performance measures. ***, **. * indicate significance at 1%, 5%, and 10% level, respectively.

	First Stage	Second Stage							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Ent_at	SALES	OI	NI	Tobin's Q	SALES+1	OI+1	NI+1	MBratio
$\widehat{ENT}$		-0.980***	-0.150***	-0.102*	-1.252	-0.632***	-0.069*	0.043	-3.018
		(-5.323)	(-3.405)	(-1.720)	(-0.734)	(-3.611)	(-1.740)	(0.791)	(-0.998)
ANTI-GRAFT x GEQ4	-0.011***								
	(-2.881)								
ANTI-GRAFT x GEQ3	0.002								
	(0.733)								
ANTI-GRAFT x GEQ2	-0.001								
	(-0.228)								
ANTI-GRAFT	-0.010***								
	(-4.706)								
GEQ2	0.015***								
	(3.836)								
GEQ3	0.014***								
	(3.488)								
GEQ4	0.029***								
	(5.814)								
ICF	0.006	-0.072***	-0.013***	-0.036***	1.272***	-0.054***	-0.003	-0.004	1.871***
	(0.553)	(-4.279)	(-4.066)	(-7.728)	(7.812)	(-3.325)	(-1.006)	(-1.032)	(7.212)
ATG	0.077***	0.379***	0.079***	0.136***	0.342**	0.120***	0.039***	0.031***	0.718***
	(9.997)	(20.108)	(17.947)	(21.470)	(2.308)	(6.660)	(10.280)	(6.001)	(2.681)
RND	1.754***	2.826***	0.217**	0.098	17.058***	2.034***	0.095	-0.048	31.160***
	(7.152)	(6.801)	(2.221)	(0.790)	(4.199)	(4.970)	(1.010)	(-0.401)	(4.603)
ADPROMO	0.892***	3.108***	0.295***	0.230***	9.385***	2.597***	0.217***	0.090	16.225***
	(3.312)	(9.158)	(4.925)	(2.954)	(3.762)	(7.659)	(3.650)	(1.191)	(3.758)
LEV	0.017***	0.129***	-0.024***	-0.052***	0.207**	0.117***	-0.022***	-0.038***	1.685***
	(2.812)	(10.474)	(-14.588)	(-23.054)	(2.543)	(9.261)	(-12.774)	(-17.382)	(11.378)
SIZE	-0.024***	-0.022***	0.001	0.004**	-0.153***	-0.014***	0.002**	0.006***	-0.309***
	(-16.375)	(-4.160)	(0.466)	(2.483)	(-3.307)	(-2.814)	(2.179)	(4.459)	(-3.789)
Quarter dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
industry dummy	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
clustered by firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	31,240	31,218	31,218	31,218	31,218	29,935	29,935	29,935	30,357
R-squared	0.216	0.265	0.179	0.252	0.261	0.226	0.126	0.125	0.259

Table 8. DID Approach

Table 8 shows a difference-in-difference analysis to compare the before and after application of the law to analyze how this law affects the corporate performance. We analyze the sales exposure of the government as the treated group, which is likely to be the most influenced by the anti-graft law which restricts the upper limit of entertainment expenses to public officials. GE is the level of industry exposure to government spending as the proportion of the industry's total output being purchased by the government sector for final use; OI is a ratio of operating income to total asset; NI is a ratio of net income to total asset; Tobin's Q is a ratio of market value of assets to book value of assets; MBratio is a ratio of value of common stock to book value of common stock. Detailed definitions of control variables are provided in Table 1. ***, **. * indicate significance at 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	SALES	OI	NI	Tobin's Q	SALES+1	OI+1	NI+1	MBratio
ANTI-GRAFT x GE	0.033**	0.007*	0.010**	0.579***	0.028**	0.006	0.001	0.908***
	(2.280)	(1.809)	(2.011)	(2.839)	(1.981)	(1.595)	(0.328)	(2.782)
GE	-0.153***	-0.002	-0.012**	1.659***	-0.141***	0.000	-0.009*	2.667***
	(-6.734)	(-0.416)	(-2.518)	(6.578)	(-6.206)	(0.022)	(-1.830)	(6.216)
ICF	-0.065***	-0.014***	-0.037***	1.482***	-0.045**	-0.004	-0.006	2.227***
	(-3.536)	(-4.160)	(-7.796)	(8.209)	(-2.527)	(-1.262)	(-1.520)	(7.759)
ATG	0.300***	0.069***	0.129***	0.291***	0.068***	0.035***	0.036***	0.564***
	(22.246)	(23.584)	(27.366)	(3.263)	(5.343)	(14.275)	(10.643)	(3.498)
RND	0.426	-0.049	-0.094	20.519***	0.239	-0.046	-0.021	35.638***
	(1.456)	(-0.889)	(-1.454)	(7.713)	(0.818)	(-0.830)	(-0.325)	(8.322)
ADPROMO	2.105***	0.140***	0.100**	10.385***	1.924***	0.136***	0.110**	17.402***
	(6.693)	(3.432)	(2.168)	(5.192)	(6.007)	(3.310)	(2.432)	(4.948)
LEV	0.156***	-0.025***	-0.050***	-0.004	0.151***	-0.022***	-0.036***	1.256***
	(12.033)	(-16.592)	(-25.060)	(-0.054)	(11.373)	(-14.085)	(-18.942)	(9.045)
SIZE	0.001	0.004***	0.006***	-0.158***	-0.000	0.004***	0.005***	-0.288***
	(0.233)	(12.309)	(15.067)	(-9.691)	(-0.146)	(11.609)	(13.527)	(-10.398)
Quarter dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
clustered by firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	31,218	31,218	31,218	31,218	29,935	29,935	29,935	30,357
R-squared	0.137	0.146	0.231	0.184	0.094	0.089	0.102	0.182

Appendix Table A 1. GE distribution

This table shows the distribution of government exposure measure (GE) by 61 industries from KSIC 2digit industry classification. Since the industry classification is different between KSIC and input-output account, some industries are subdivided into 3 digit to match codes of KSIC and input-output accounts.

INDUSTRY	KSIC CODE	GE
Manufacture of pharmaceuticals, medicinal chemical and botanical products	21	46.49%
Education	85	41.96%
Heavy and civil engineering construction	42	33.24%
Creative, arts and recreation related services	90	32.55%
Printing and reproduction of recorded media	18	22.73%
Manufacture of other transport equipment; except ships and boats	31	18.78%
Waste collection, treatment and disposal activities; materials recovery	38	18.11%
Mining of non-metallic minerals, except fuel	7	18.00%
Manufacture of other non-metallic mineral products	23	17.27%
Architectural, engineering and related technical services	74	16.64%
Rental and leasing activities; except real estate	76	16.47%
Building construction	411	16.31%
Research and development	70	12.71%
Information service activities	63	11.69%
Publishing activities	58	11.54%
Manufacture of wood and of products of wood and cork; except furniture	16	10.78%
Electricity, gas, steam and air conditioning supply	35	10.65%
Real estate activities	68	10.64%
Manufacture of medical, precision and optical instruments, watches and clocks	27	10.41%
Business support services	75	9.78%
Manufacture of fertilizers, pesticides, germicides and insecticides	203	9.51%
Manufacture of fabricated metal products, except machinery and furniture	25	9.16%
Business related professional services	71	9.01%
Food and beverage service activities	56	8.97%
Postal activities and telecommunications	61	8.63%
Manufacture of pulp, paper and paper products	17	8.44%
Remediation activities and other waste management services	39	8.02%
Other professional, scientific and technical services	73	7.38%
Land transport and transport via pipelines	49	6.83%
Sale of motor vehicles and parts	45	6.56%
Wholesale trade on own account or on a fee or contract basis	46	6.56%
Retail trade, except motor vehicles and motorcycles	47	6.56%
Mining of coal, crude petroleum and natural gas	5	6.54%
Manufacture of furniture	32	6.40%
Manufacture of basic metals	24	6.15%
Mining of metal ores	6	6.13%
Motion picture, video and television programme production, sound recording and music publishing activities	59	5.89%
Warehousing and support activities for transportation	52	5.79%
Air transport	51	5.70%
Manufacture of rubber and plastics products	22	5.66%
Broadcasting activities	60	5.62%
Computer programming, consultancy and related activities	62	5.52%
Manufacture of electrical equipment	28	5.33%
Manufacture of coke, briquettes and refined petroleum products	19	5.21%
Other manufacturing	33	5.04%
Fishing and aquaculture	3	4.88%
Agriculture	1	4.71%
Manufacture of glass and glass products	231	4.43%
Accommodation	55	4.35%
Manufacture of beverages	11	4.22%
Manufacture of food products	10	4.16%
Manufacture of chemicals and chemical products; except pharmaceuticals, medicinal chemicals, fertilizers, pesticides, germicides and insecticides	20	4.03%
Manufacture of textiles, except apparel	13	3.60%
Manufacture of wearing apparel, clothing accessories and fur articles	14	3.39%
Manufacture of other machinery and equipment	29	3.29%
Manufacture of leather, luggage and footwear	15	2.73%
Manufacture of motor vehicles, trailers and semitrailers	30	2.58%
Manufacture of electronic components, computer; visual, sounding and communication equipment	26	2.00%
Sports activities and amusement activities	91	1.70%
Water transport	50	1.39%
Building of ships and boats	311	1.27%

Chapter 3.

한국 기업의 자사주 처분 및 소각에 관한 실증 연구[6]

[6] 본 내용은 한국증권학회지 제 46권 1호에 게재 (공동저자 김우진, 2017) 되었음.

1. 서론

최근 국회를 중심으로 상법 개정에 대한 논의가 활발하다. 주로 야당에서 발의된 상법 개정안에는 여러 내용이 있지만 그 핵심 중의 하나는 자사주의 처분과 관련된 사항이다. 재무적 관점에서 자사주(treasury shares)는 발행되었지만 유통 중이 아닌(issued, but not outstanding) 주식으로서 배당 및 의결권이 없고 원칙적으로 시가총액을 계산할 때도 제외하는 것이 타당하다. 특히, 자사주를 처분하는 행위는 개념상 신주의 발행과 동일한 행위임에도, 현행법 상으로는 이에 대한 주주의 통제권이 인정되지 않아 사실상 경영권 방어 등의 수단으로 널리 활용되는 경향이 있어 왔다. 최근 삼성물산이 제일모직과의 합병결의를 위해 발행주식 총수의 5.8%에 해당하는 자기주식을 KCC에 매각함으로써 합병결의를 성사시켰는데, 당시 미국계 헤지펀드 엘리엇은 주주평등의 원칙에 반함을 이유로 가처분 소송을 제기하였으나 패소한 바 있다. 그러나 이와 같은 경영권 방어 목적의 자사주 매각은 기존 경영진의 고착화(entrenchment)를 발생시킬 수 있다는 측면에서 이해관계상충의 가능성이 있다. 특히 자사주 매각이 저가로 이루어질 경우 주주가치 희석 및 하락으로 이어질 수 있다는 점이 문제로 지적된다. (박경서, 2016)

자사주는 이외에도 지주회사로 전환하는 기업집단들에 의해서도 많이 활용된다. 회사를 지주회사와 사업회사로 인적 분할할 때 보유 중인 자사주를 자산으로 취급하여 분할된 자회사의 자사주를 모회사에 남겨둠으로써 분할과 동시에 별도의 지분취득 행위 없이 두 회사간 지분관계가 자동적으로 형성되게 된다. 2006년 SK의 지주회사 전환 시 17.8%의 자사주를 취득하여 분할된 자회사의 자사주를 모회사가 승계, 보유하도록 했는데, 이후 여러 기업집단에서 이러한 방식을 활용한 바 있다.[7]

[7] Kim and Wnag(2016)은 국내 기업집단의 지주회사 전환 과정을 상세히 분석하고 있

이에 본 연구에서는 자사주의 처분과 관련한 해외 사례 및 제도를 살펴보고, 국내 기업들이 자사주를 취득한 이후 이를 어떻게 처분하고 소각하는 지를 실증적으로 분석함으로써 최근 상법 개정 동향에 시사점을 제공하고자 한다. 그 간의 자사주에 대한 국내외 연구 결과는 주로 자사주의 '취득'에 초점을 두고 있어서 취득 이후의 처분(재매각) 또는 소각 행위에 대한 연구는 거의 없었다. 분석 결과 국내 유가증권 시장 상장기업들 중 자사주를 실제로 소각하는 경우는 극소수에 불과함을 알 수 있었다. 자사주 소각행위가 있었던 기업-연도는 전체 기업-연도 표본의 2.3%에 지나지 않았다. 즉, 국내 상장기업들은 취득한 자사주의 대부분을 소각하지 않고 재매각 하는 경향이 있음을 발견할 수 있었다. 주요 통제변수들을 포함한 회귀 분석 결과, 기업지배구조가 양호한 기업들의 경우 그렇지 않은 기업들에 비해 취득한 자사주를 소각하는 경향이 더 두드러졌다. 특히, 배당을 많이 하는 기업일 수록 소각도 많이 나타나 양자간에 보완적인 관계가 발견되었다. 이는 지배구조가 우수한 기업일수록 자사주 매입을 주주환원 정책의 일환으로 인식하고 있다는 것을 의미한다.

한편, 기업지배구조 수준과 자사주 매각 빈도간에는 양의 상관관계가 발견되었다. 반면 지배구조 수준과 자사주 매각 규모 간에는 음의 상관관계가 나타났는데, 이는 특히 매각되는 자사주가 발행주식 총수의 10% 이상인 경우, 즉 경영권 방어와 밀접한 관계가 있는 것으로 추정되는 경우에 더욱 두드러지게 나타났다. 이러한 연구 결과는 자사주가 기존 지배주주의 경영권 보호를 위해 활용되고 있음을 보여줌으로써 최근 논의 중인 상법 개정안에 대한 실증적 근거를 제공한다는 차원에서 그 제도적, 실무적 의의를 찾을 수 있다.

본 연구는 다음과 같이 구성되었다. 서론에 이어 제2장에서는 자사주 처분과 관련된 해외와 국내 제도 현황 및 그 간의 연구 동향을 소개한다. 제3장에서는 데이터 및 표본의 구성에 대해 설명한다.

다.

제4장에서는 실증분석 결과를 소개하고, 제5장에서는 위와 같은 실증분석 결과를 토대로 정책적 시사점을 포함한 결론을 제시한다.

2. 제도적 배경 및 연구 동향

2.1. 제도적 배경

2.1.1. 국내 상법 규정

현행 상법은 회사가 자기 주식의 처분방법을 정관에서 정할 수 있고, 정관에 규정이 없을 경우에는 이사회가 결정할 수 있는 것으로 규정하고 있다.[8] 2011년 개정 전 상법에서는 자기주식의 취득은 원칙적으로 금지하고, 합병이나 영업양도 등 회사의 조직법적 거래에 부수하여 파생적으로 일어나는 불가피한 비자발적 취득만 허용하였으나, 2011년 상법 개정으로 자기주식의 취득은 기업의 통상적인 재무활동이 되었으므로 자사주에 대해서는 보유 및 처분의 자유가 널리 인정된다는 것이 법조계 및 판례의 시각이다.[9] 법 개정 이전에는 경영권 방어 목적의 자사주 처분은 인정되지 않는다는 일부 하급심 판례도 있었으나(서울서부지법2006.3.24 결정, 2006카합393), 그 이후 상당수의 하급심 판결 및 대법원 판결(대법원 2010.10.28. 선고 2010다51413)에서는 자기주식 처분에 대해 신주의 발행과는 달리 주주평등의 원칙을 적용하지 않았다.[10] 이와 같은 자사주 처분과 신주 발행에 대한 이원적인 접근 방식은 개정 상법을 통해 명문화 되었으며, 대법원의 입장도 삼성물산의 KCC에 대한 자사주 매각을 인정한 결정에서 다시 한 번 확인되었다.

2.1.2 해외 제도

[8] 상법 제 342조.
[9] 이철송(2016a).
[10] 이철송(2016b).

해외의 입법 사례를 보면 다수의 국가에서 자사주의 취득과 처분에 대한 주주의 이해를 중요한 법적 권리로 보고 기존 주주의 비례적 지위를 보호하고 있다. 예컨대, 독일 주식법에서는 자기주식의 취득과 처분은 주식 평등의 원칙에 따를 것을 명문으로 규정하고 있으며(동법 71조1항8호) 제3자 배정 시 신주의 제3자 배정관련 규정을 준용하도록 하고 있다. 일본 회사법에서도 자사주 처분 시에는 신주발행과 동일한 절차에 의하도록 하고 (동법 199조) 이러한 절차에 위반하여 이루어진 자사주 처분에 대해서는 무효소송을 제기할 수 있도록 하고 있다.[11] 영국 회사법 역시 자기주식의 처분도 주주의 신주인수권 대상이 되도록 규정하고 있으며 (동법 560조2항) 특히 자율규제인 City Code에 따르면 M&A 상황 하에서는 주주가치를 훼손할 수 있는 어떠한 방어행위도 원칙적으로 금지하고 있다. 반면, 미국의 경우는 자사주 매각에 대한 특별한 제도적 제한은 없는데, 이는 민사소송을 통한 사후적 구제가 매우 발달한 미국의 특성상 시장 자체의 규율이 작동하는 것으로 봐야 한다는 시각이 우세하다.[12]

2.1.3 최근 상법 개정 동향

최근 더불어민주당 소속 박용진 의원이 발의한 상법 개정안(2016.7.13.)은 회사의 인적분할 시 자사주에 신주 배정을 금지하는 내용을 포함하고 있다. 같은 당 소속 박영선 의원이 발의한 법인세법 개정안도 같은 원칙에서 자사주에 신주를 배정할 경우 양도손익이 있는 것으로 판단하여 과세하도록 하고 있다. 이 두 법안은 인적분할을 통해 지주회사를 설립할 때 분할된 자사주를 모회사가 승계하도록 함으로써 분할과 동시에 모자회사간 지분관계가 자동으로 형성되는 현행 방식을 규제하는 것이 목적이다. 박영선 의원이 제안한 상법 개정안에는 다수의 해외 입법 사례와 마찬가지로 자사주 처분에 있어서도 신주 발행과

[11] 이철송(2016b)
[12] 박경서(2016), Ayres(1990).

동일하게 주주평등의 원칙을 명시적으로 적용할 것을 제안하고 있다.

2.2. 자사주 관련 연구 동향

자사주 관련 그간의 국내외 연구는 주로 자사주 '취득'의 효과에 집중되어 왔다. 재무금융 분야에서 자사주 취득이 주주환원 정책(payout policy)의 일환으로 널리 인식되면서 현금 배당과의 비교 분석 또한 다양한 각도에서 이루어졌다. 예컨대, 자사주 취득 공시에 대한 시장의 반응을 분석한 Comment and Jarrell (1991)에 따르면 장내 매수의 경우 평균 약 2% 의 비정상 수익률이, 공개 매수(tender offer)의 경우에는 평균 약 11%에 달하는 비정상 수익률이 보고 되고 있다. Ikenberry, Lakonishock, and Vermaelen (1995)은 자사주 취득 기업의 장기 주가 성과를 분석하였는데, 가치주가 성장주보다 과소반응(underreaction)이 더 크게 나타나서 향후 4년간 누적 비정상 수익률이 더 높아지는 현상을 보고하고 있다.[13]

국내에서는 이태희, 김철규, 임병문 (2001), 정무권(2005) 등이 유사한 방법론을 통해 자사주 매입 기업의 공시 효과 및 장단기 성과 분석을 실시하였다. 김효진, 윤순석 (2010)은 자사주 취득과 현금배당의 대체 관계에 주목하여 국내 기업의 특징인 소유지배괴리 현상의 정도가 양자간 대체 관계에 어떠한 영향을 미치는 지를 분석하였다. 이처럼 그간의 연구는 주로 자사주의 취득을 분석하고 있는데, 이는 특히 미국에서 자사주 취득을 배당과 마찬가지로 주주환원 정책의 일환으로 파악함으로써 취득된 자사주는 당연히 소각됨을 전제로 하고 있기 때문이 아닐까 사료된다.

한편, 일부 연구에서는 자사주 취득이 경영권 방어의 수단으로 쓰일 수 있음을 이론적, 실증적으로 지적하기도 한다. 자사주 매입을 통해 적대적 인수자의 매입 가능 주식을 줄이는 한편, 주가 상승으로 적대적 인수자의 매입 비용을 증가시킬 수 있기 때문이다 (Bagnoli,

[13] 해외 연구 결과는 Allen and Michaely(2002)의 survey논문 참조.

Gordon, and Limpman (1989), Persons (1994) 등). Joh and Ko (2007)는 국내 기업을 대상으로 한 연구에서 지배주주의 의결권이 부족한 기업일수록 자사주 취득이 더 활발함을 보고하며, 자사주가 경영권 방어 수단으로 이용될 수 있음을 지적하였다. 정성창, 김영환(2013)은 자사주 취득과 기타 경영권 방어 수단의 대체 관계를 분석하였다. 그러나 이러한 연구 역시 자사주 '취득'을 통한 경영권 방어 가능성을 분석한 것이고 '처분'을 통한 경영권 방어 현상을 분석한 것은 아니다.

반면 자사주 '처분'에 대한 연구는 그 적법성 및 허용 여부에 관한 법학자들의 논평이 주류를 이루어 왔으며 (김홍식 (2016), 박정국 (2013), 안효섭 (2014), 정준우(2012) 등) 이에 대한 실증 분석 결과는 거의 전무한 실정이다. 재무 또는 회계 분야에서 자사주 처분을 분석한 연구로는 자사주 처분 기업들의 이익 조정을 고찰한 기현희, 김민철 (2012)이 거의 유일하다. 본 연구는 이러한 연구의 공백을 메우고 자사주 처분 및 소각 기업들의 특성을 실증적으로 분석함으로써 최근 상법 개정 논의 동향에 보탬이 되고자 한다.

3. 연구 표본의 구성

3.1 분석대상 표본 및 자료수집

본 연구는 한국거래소 유가증권 시장에 상장되어 있는 모든 제조기업을 분석대상으로 하였으며 금융산업은 자본구조의 의미가 제조기업들과 차이가 있으므로 제외하였다. 표본기간은 자사주 자료가 존재하는 기간인 2004년부터 2015년까지이고, 한국상장회사협의회에서 제공하는 데이터베이스인 TS2000에서 자기주식 취득 및 처분현황 자료를 추출하였다. 한국기업지배구조원에서 2005년부터 2015년까지의 기업별 지배구조 평가점수를 제공받았으나, 2014-2015년은 평가체계가 개정되어 자료의 일관성을 위해 동 자료를 활용한 분석기간은 2005년부터 2013년까지로 제한하였다. 연구모형에 포함된 기업특성

변수측정을 위하여 기업의 재무회계 자료와 산업분류 등 일반적인 사항에 대한 자료는 에프앤가이드에서 추출하였다.

3.2 변수 구성 및 정의

3.2.1 자사주 변수

식 (1) 과 같이 기초 자기주식수에 당해 기간 중 취득한 자기주식수를 추가하고 당해 기간 중 처분한 자기주식수와 소각한 자기주식수를 제외하면 기말 자기주식수가 도출된다.

기초 자기주식수 + 취득 자기주식수 - 처분 자기주식수 - 소각 자기주식수
=기말자기주식수 (1)

이를 취득 자기주식수로 재정리하면 다음과 같다.

취득 자기주식수 = 처분 자기주식수+ 소각 자기주식수
+(기말자기주식수-기초 자기주식수) (2)

즉, 특정한 회계 년도 내에 취득한 자사주는 정의상 당해년도 내 처분 또는 소각되거나 기말까지 보유하게 된다.[14] 본 연구에서는 처분, 소각, 보유 자기주식수를 기간 중 상장주식수 또는 평균적으로 보유한 자기주식 수 [=(기초자기주식수 +기말자기주식수)/2]로 표준화한 값을 각각 종속변수로 하여 실증분석을 진행하였다.

3.2.2 기업지배구조 변수

한국기업지배구조원은 매년 상반기에 전체 상장법인에 대하여 사업보고서 등 각종 공시자료를 바탕으로 지배구조평가를 실시하고 있다. 기업의 지배구조를 평가하는 데 사용할 주요 변수는 다음과 같이 한국기업지배구조원에서 제공하는 정의 및 수치를 사용하였다.[15]

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[14] 단, 이때의 보유는 저량(stock)으로서의 누적 보유규모가 아니고 당해 기간 동안 추가로 보유하게 된 유량(flow)로서의 자사주 규모를 의미한다.

[15] 한국기업지배구조원(http://www.cgs.or.kr)의 지배구조 ESG평가 항목 참조.

(1) 주주권리보호(Shright): 주주권리의 보호 및 행사 편의성, 소유구조, 특수관계인과의 거래 등을 살펴보고 주주권리 보호를 위한 제반 장치들이 마련되어 있는지 평가한다.

(2) 이사회(Board): 이사회의 구성 및 운영, 평가 및 보상 등과 같은 활동내역을 평가한다. 이사회 구성 평가 문항에는 사외이사 구성현황, 대표이사와 이사회 의장의 분리여부, 사외이사후보추천위원회와 보상위원회 설치 및 구성현황이 포함되고, 이사회의 운영, 평가 및 보상 평가 문항에는 이사회, 이사회 내 위원회, 그리고 사외의사의 활동내용 및 평가결과가 포함되어 있다.

(3) 공시(Disclosure): 공시일반, 홈페이지 공시를 통해 영업보고서 및 기타 기업관련 사항의 공시여부를 평가한다. 공시일반의 평가 문항에는 기업설명회 실적 및 사전예고 여부, 자진(자율)·정정·조회·장마감이후 공시 등 공시실적, 영업손익 등 사업실적 및 예측정보 관련사항, 그리고 사외이사의 겸직 및 겸업내역 등을 포함한다. 홈페이지 공시 평가문항에는 이사회 및 이사회 내 위원회 관련사항, 영업보고서 및 수시공시사항, 기업지배구조 모범규준과의 차이 및 평가등급, 그리고 개별 등기임원 보수현황 등을 포함한다.

(4) 감사기구(Audit): 감사기구의 설치 및 운영에 관한 사항을 평가한다. 주요 평가 문항으로는 감사기구의 형태, 감사기구의 업무지원을 위한 독립된 감사부서 존재, 감사위원회의 설치와 구성 및 운영현황, 외부감사인의 비 감사 용역 현황, 그리고 내부신고자 보호규정 및 관계사와의 거래투명성 관리 시스템 마련 등을 포함하고 있다.

(5) 경영과실배분(Distribution): 경영 손익의 배분이 잘 되고 있는지 평가한다. 주요 평가 문항으로는 배당수익률 현황 및 최근 3년간 배당성향과 중간 또는 분기배당 실시여부 등을 포함한다.

(6) 감점(Minus): 기타 감점될 만한 사항을 판단하여 평가한다.

(7) 총점(Gov_total)= Shright+ Board+ Disclosure+ Audit+ Distribution-Minus. 위의 (1)~(5) 항목을 합산하고 항목(6)을 제한 값을 총점으로 정의하며, 총점은 300점 만점이다.

3.2.3 기업특성변수

본 연구에서는 기존연구들을 참고하여 기업특성변수로 기업규모, 현금, 수익성, 배당, 부채비율, 시가-장부비율을 사용한다. 보다 구체적으로는, 기업규모는 총자산에 자연로그를 취한 값을 사용한다. 현금, 수익성, 배당, 부채비율 변수는 현금성 자산, 당기순이익, 배당금, 총부채를 각각 총자산으로 나눈 값을 사용한다. 시가-장부비율은 시가총액을 장부가 자본금으로 나눈 값을 사용하고, 여기서 장부가 자본금은 보통주자본금에 자본잉여금, 이익잉여금, 그리고 이연법인세 부채를 더한 값에 자기주식을 차감하여 구성하였다.

(1) 기업규모(Size): Ln(총자산)

(2) 현금(Cash): 현금성 자산 / 총자산

(3) 수익성(Profitability): 당기순이익 / 총자산

(4) 배당(Dividend): 배당금 / 총자산

(5) 부채비율(Lev): 총부채 / 총자산

(6) 시가-장부비율(MBratio): 시가총액 / 장부가 자본금

4. 실증 분석 결과

4.1 기초통계량

자사주 취득, 처분, 소각 현황에 대한 기초 통계량은 분석 대상인 2004년부터 2015년까지를 대상으로 작성되었다. <표 1>에서는 금융권을 제외한 전체 유가증권상장 회사를 대상으로 전체표본

7,428개의 기업-연도 관측치에 대한 자사주 활동과 각 자사주 활동별 기초통계량을 전체 및 연도별로 보여준다.

[A]에서는 2004년부터 2015년까지 전체 기간 및 연도별로 유가증권에 상장된 전체 표본수, 자사주 표본수, 그리고 자사주 활동 비중을 보여준다. 자사주 표본수는 당해 년도 중 자사주 취득, 처분, 소각이 한 건이라도 있었던 기업-연도 표본수를 의미하고, 자사주 활동 비중은 전체 기업-연도 표본 대비 자사주 표본을 의미하며 단위는 % 이다. 2004년부터 2015년까지 전체 유가증권 상장 기업-연도 총 7,426개 중 자사주 취득, 처분, 또는 소각의 자사주 활동을 1회 이상 했던 기업-연도는 2,656개 표본으로 전체 유가증권상장 기업-연도의 35.8%를 차지한다. 연도별 추이를 살펴보면 최근 들어 다소 감소하는 경향이 있지만, 매년 유가증권상장 기업의 25% 이상이 자사주 활동을 활발하게 하고 있음을 알 수 있다.

[B]에서는 각 자사주 활동의 상대적인 비중이 어느 정도 되는 지 파악하기 위해 유가증권상장기업 중에서 자사주의 취득, 처분, 소각 활동이 있었던 기업만을 분석 대상으로 한정하여 이들의 각 활동별 현황을 개별적으로 분석하였다. 결과에 따르면 2004년부터 2015년 사이에 유가증권시장에 상장해 있던 7,428개 기업-연도 관측치 중 1,904개의 관측치가 자사주 취득 활동을 했고 1,460개 관측치가 처분을 했으며 174개 관측치가 소각을 한 것으로 나타난다.[16] 이에 의하면 실제 소각을 하는 경우는 취득이나 처분에 비해서 현저히 적게 발생하는 것을 알 수 있다.

[B]에서 활동 비중은 [A]의 전체 표본 대비 [B]의 각 자사주 활동 표본수를 나타내는데, 전체 표본의 25.6%가 자사주 취득 활동을, 19.7%가 처분 활동을 하는 것으로 보아 국내 상장기업들은 자사주 취득 및 처분 활동을 매우 활발히 하고 있음을 알 수 있다. 반면 소각 활동

[16] 여기서 각 활동별 관측치의 합은 3,538로 전체 자사주 활동 기업-연도 2,656보다 크게 나타나는 데, 이는 한 기업이 특정 연도에 취득, 처분, 소각을 동시에 할 수 있기 때문이다.

비중은 평균 2.3%로, 자사주 취득과 처분에 비해 소각 활동은 매우 드물게 일어나고 있음을 알 수 있다. 이는 국내 기업에서 자사주 취득을 주주환원 정책의 일환으로 보기에는 한계가 있음을 시사한다.

또한, 자사주 취득 활동이 있었던 기업들은 평균적으로 상장주식수의 2.6%에 해당하는 자사주를 취득하였고, 자사주 취득 금액은 평균 339억원으로 나타났다. 자사주 처분 활동이 있었던 표본들은 평균적으로 상장주식수의 3.2%에 해당하는 자사주를 처분하였으며 자사주 처분 금액은 평균 332억원으로 나타났다. 즉, 자사주 취득 및 처분활동이 있는 기업이 경우 매년 약 300억원 규모의 취득 또는 처분 활동을 하며, 이는 평균적으로 상장주식 총수의 약 2-3%에 해당되는 규모임을 알 수 있다. 마지막으로 소각 열을 살펴보면, 분석에 활용된 표본 수는 취득과 처분에 비해 현저히 적지만, 한 기업-연도당 소각의 규모는 취득 또는 처분에 비해 매우 큼을 알 수 있다. 보다 구체적으로 전체 상장주식수의 평균5.6%, 금액으로는 평균 750억원에 해당하는 자사주를 소각하며, 이는 취득 및 처분 활동 규모에 비해 상대적으로나 절대적으로나 약 두 배에 해당한다. 이러한 결과는 국내 상장 기업의 소각 건수는 적지만 일단 소각을 하기로 한 경우, 그 규모는 상당 수준에 해당함을 알 수 있다. 즉, 주주환원 정책으로서의 자사주 취득 및 궁극적 소각은 간헐적이지만 상대적으로 대규모로 일어나는 것으로 해석할 수 있다.

<표 1> 삽입

다음 <표 2>에서는 당해 년도에 '취득'한 자사주가 어떻게 처분, 소각, 또는 기말까지 보유되는지를 고찰한다. 보다 구체적으로는 자사주 '취득'이 있었던 표본들만 추출하여 자사주의 취득, 처분, 소각, 보유 (= 기말자사주 - 기초자사주) 활동의 금액과 각 자사주 활동의 주식수를 [1]상장주식수와 [2]평균 자사주 [=(기초+기말 자기주식수)/2]로 조정한 값의 기초통계량을 보여준다. 금액은 주식수 × 종가로 계산하였고,

단위는 억 원이다.

자사주의 취득, 처분, 소각, 보유 주식수를 (기초+기말 자기주식수)/2 로 조정한 [2]평균 자사주 표본의 수가 1,845로 전체 표본보다 47개 적은 이유는 기말과 기초 자기주식수가 모두 0 인 경우를 제외했기 때문이다. 또한 취득 주식수 및 처분 주식수가 기중 평균 자사주의 15-16배에 달하는 것은 중위수 및 3분위수의 값이 적은 것으로 미루어 일부 극단치의 영향인 것으로 추정된다. 따라서 실증분석에서는 이러한 극단치의 영향을 통제하기 위해 로그를 취하여 사용하였다.

자사주 활동 주식수를 [2]평균 자사주로 조정한 값의 중위수 기준으로 볼 때 취득은 0.419, 보유는 0.194로 나타났다. 이러한 결과는 당해 년도에 취득한 자사주의 약 절반에 가까운 분량을 기중에 처분 또는 소각하지 않고 기말까지 보유하고 있음을 의미한다. 물론 이와 같이 보유되는 주식들은 추후 다양한 목적으로 처분이 가능하다. 각 활동 비율의 평균과 중위수의 차이가 크고, 처분 및 소각된 자사주의 주식수는 3분위수 까지도 0인 것으로 미루어 양의 왜도가 존재함을 알 수 있다. 반면, 보유의 경우 중위수가 양의 값을 가지는데, 이는 역시 취득한 자사주가 당해 년도에 처분 또는 소각되기 보다는 기말까지 보유되어 누적 보유 규모를 증가시키는 경향이 있음을 시사한다.

[1]상장주식수로 표준화한 경우에는 평균과 중위수의 차이가 상대적으로 적어 왜도 현상이 줄어든다. 평균 기준으로 볼 때 상장 주식수의 약 2.6%를 취득하여 이 중 약 절반을 처분하고, 약 1/3은 기말까지 보유하는 것으로 해석할 수 있다.

<표 2> 삽입

다음 <표 3>는 회귀분석의 설명변수인 지배구조 점수와 기업특성변수의 기초통계량을 보여준다. 지배구조 점수의 표본 기간에 맞춰 2005년부터 2013년 까지 자사주 취득이 있었던 기업만을 추출하여 취득한 자사주의 처분, 소각, 보유 활동을 파악하였다. 각 활동별로

자사주 활동이 있었던 기업-연도는 [1]열에, 없었던 기업-연도는 [2]열에 각 설명변수의 기초통계량을 보고하였다. 지배구조 점수는 한국기업지배구조원에서 제공하는 원 점수 (300점 만점)를 사용하였고, 기업특성변수는 3.2.3에 제시된 정의대로 구성하여 분석에 사용하였다.

먼저 평균을 보면 자사주 처분 및 소각 활동을 한 표본[1]의 지배구조 점수가 활동을 하지 않은 표본[0]의 것보다 크게 나타나며, 이러한 현상은 총점뿐만 아니라 모든 세부항목 점수에서 나타나고 있다. 반면 자사주 보유 활동을 한 표본, 즉 기초 대비 누적 보유 자사주를 증가시킨 기업-연도 표본은 전반적으로 낮은 지배구조 점수를 보인다.

기업특성변수를 보면 처분 및 소각 활동을 한 기업이 기업규모, 배당, 부채비율, 시가-장부비율에서 평균적으로 큰 값을 가지고 있음을 알 수 있다. 반면 수익성 변수는 처분과 소각 활동에 따라 다른 특성을 보이는데, 처분을 하는 표본은 수익성 변수가 큰 값을 가지는 반면에 소각 활동을 하는 표본은 하지 않은 표본에 비해 낮은 수익성을 보이고 오히려 음의 값을 나타내고 있다. 이는 배당은 기업의 영업 활동이 좋을 때 수익 분배의 관점에서 행해지고, 자사주 소각은 기업의 영업활동이 좋지 않을 때 보상의 관점에서 행해 질 수 있음을 제시한 Jagannathan, Stephens, and Weisbach(2000)의 연구 결과와 일맥상통한다.

<표 3> 삽입

4.2 회귀분석

지금까지 단변량 분석을 통해 우리나라 기업들의 자사주 취득, 처분, 소각, 보유 현황에 대해 알아보았다. 분석 결과 자사주 취득 및 처분 활동이 상대적으로 활발히 일어나고 취득한 자사주를 소각하는 경향은 희박하며 주로 기말까지 보유함으로써 누적 보유규모를 증가시키고 있는 것을 알 수 있었다. 지금부터는 이와 같은 자사주 활동에 영향을 미치는 기업의 특성에는 어떠한 것들이 있는지

회귀분석을 통해 알아보고자 한다. 특히 기업지배구조 점수를 활용하여 지배구조가 자사주의 처분, 소각, 보유 등에 어떤 영향을 미치는지를 중점적으로 분석한다.

4.2.1 자사주 활동에 대한 로짓-회귀분석

<표 4> 에서는 처분, 소각, 보유와 같은 자사주 활동 여부를 결정하는 데 기업특성 및 지배구조가 어떠한 영향을 미치는지 알아보기 위해 로짓-회귀분석을 실시하였다. 즉, 자사주 취득 기업을 대상으로 당해년도에 처분, 소각, 보유의 자사주 활동을 했으면 1, 아니면 0의 값을 종속변수에 부여하였다.[17] (1)~(3)은 기업 특성이 각각의 자사주 활동 여부에 미치는 영향을 보여주고, (4)~(6)은 지배구조 인덱스의 세부항목의 영향을, (7)~(9)는 기업특성을 통제한 지배구조 세부항목의 영향을, (10)~(12)는 기업 특성을 통제한 지배구조 총점이 자사주 활동 여부에 미치는 영향을 보여준다. 회귀분석시에는 앞서 보고한 한국기업지배구조원에서 제공하는 지배구조 원점수를 만점인 300점으로 나눈 표준화된 점수를 사용하였고, 기업특성변수는 3.2.3에 제시된 정의대로 구성하여 분석에 사용하였다.

(1)에서 우선 기업 규모(Size)의 효과를 보면 규모가 큰 기업일수록 취득한 자사주를 보유하기 보다는 처분하는 경향이 나타났다. 이는 규모가 작은 기업일수록 추후 취득한 자사주를 다양한 목적으로 활용하기 위해 보유하는 경향이 있음을 시사한다. 한편, 현금(Cash)이 많은 기업일수록 자사주를 처분 할 확률이 높아짐을 알 수 있는데, 이는 자본조달 목적으로 자사주를 처분하는 것이 아닐 수 있음을 암시한다. (2)에서 배당(Dividend)을 많이 할수록 자사주 소각을 할 확률이 많은 것으로 보아, 배당과 자사주 소각이 보충관계에 있다고 해석해 볼 수 있다. 이러한 결과는 (5)와 (8)에서 지배구조 항목 중 배당과 관련한

[17] 해당 기간 중 한 기업이 처분, 소각, 보유를 동시에 할 수 있으므로 다항 로짓 (multinomial logit) 분석은 적용하기 곤란하다.

항목인 경영과실배분(Distribution)의 결과에서도 동일하게 나타난다. 이는 주주환원정책으로서의 자사주 소각은 일반적으로 나타나는 현상은 아니고, 최소한 배당 지급을 통해 이미 어느 정도 주주환원 정책을 시행하고 있는 기업에서 발생하는 것으로 이해할 수 있다.

또한 이사회(Board)의 평가점수가 높을수록 자사주를 소각할 확률이 높아지는 것으로 보아 주주권리정책에 있어서 이사회의 역할이 긍정적임을 알 수 있다. (10)~(12)에서 지배구조 총점 변수를 보면 전반적으로 지배구조가 좋을수록 자사주 처분과 소각을 할 확률이 높아지고 보유를 할 확률은 낮아짐을 알 수 있다. 아울러 자사주 처분보다는 상대적으로 소각의 계수 값 크기와 통계적 유의성이 큰 것을 확인 할 수 있는데, 이는 지배구조가 양호한 기업에서는 자사주가 원래 의미인 주주환원 정책의 일환으로 활용될 가능성이 상대적으로 더 높음을 의미한다.

<표 4> 삽입

4.2.2 자사주 활동에 대한 OLS 회귀분석

앞서 <표 4>에서는 자사주 활동 여부를 더미변수화 하여 처분, 소각, 보유 활동 여부의 결정 요인을 로짓 회귀분석을 통해 알아보았다. <표 5>와 <표 6>에서는 <표 4>와 유사하게 2004년부터 2015년까지 유가증권시장에 상장된 기업 중 자사주 취득이 있었던 기업을 표본으로 추출하여, 자사주 활동에 기업특성 및 지배구조가 어떠한 영향을 미치는지 분석하되, 종속변수를 연속변수화 하여 OLS 회귀분석을 실시하였다.

여기서는 자사주 취득 후 자사주관련 활동을 처분, 소각, 보유로 나누고, <표 5>에서는 각 활동 주식수를 상장주식수로 조정한 값을 종속변수로 사용하며, <표 6>에서는 각 활동 주식수를 평균자사주[=(기초+기말 자기주식수)/2]로 조정한 값을 사용하였다. <표 5>는 기존에 보유중인 자사주 규모와 관계 없는 무조건부(unconditional)

자사주 활동의 절대적 규모에 대한 분석이 주요 목적인 반면, <표 6>은 기존에 보유 중인 자사주를 어떻게 처리하는지에 대한 조건부(conditional) 자사주 활동의 상대적 규모를 분석하는 것이 주요 관심사라 할 수 있다. 예를 들어, 상장주식수가 1만주로 동일한 기업 A와 B에 대해, 당해 기간 중 평균 자사주 규모는 A가 100주, B가 1000주인데, A는 당해 기간 중 자사주 50주를 처분한 반면, B는 자사주 150주를 처분한 상황을 가정해 보자. 이 때 상장주식수 대비 자사주 처분 규모는 B가 더 크지만, 당해기간 중 평균 보유 자사주 대비 자사주 처분 규모는 A가 더 크다.

앞서 <표 2>에서 살펴보았듯이 자사주 활동에 양의 왜도가 존재함에 따라 표준화된 활동 규모에 로그를 취한 후 분석을 실시하였다.[18] 독립변수는 지배구조 점수와 기업특성변수이며, 지배구조 점수는 총점과 세부항목 점수로 나누어져 있다. 지배구조 점수는 한국기업지배구조원에서 제공하는 원점수를 만점인 300점으로 나눈 표준화된 점수를 사용하였고, 기업특성변수는 3.2.3에 제시된 정의대로 구성하여 분석에 사용하였다.

<표 5>의 (2)와 (5) 그리고 (8)에서 볼 수 있듯이 배당을 많이 하고 경영과실배분의 점수가 높을수록 소각을 많이 하는 것으로 나타나 <표 4>와 동일한 결과를 보여준다. (10)~(12)에서 지배구조 총점 변수를 보면 전반적으로 지배구조가 양호할수록 자사주 소각은 많이 하는 반면에 자사주 처분은 지배구조가 낙후 될수록 많이 하는 것으로 나타났다.

종속변수가 더미변수인 <표 4>에서는 처분 활동 여부에 대한 지배구조 계수가 통계적으로 유의한 양의 값을 가지는 반면, 종속변수가 연속변수인 <표 5>에서는 처분 활동 규모에 대한 지배구조 계수가 유의한 음의 값으로 나타났다. 이와 같이 처분 활동에 대한 지배구조의 영향은 <표 4>의 (10)과 <표 5>의 (10)에서 반대로 나오는데, 이는

[18] 표준화된 활동 규모가 1 미만인 경우를 고려하여 1을 더한 후 로그변환을 실시하였다. 다만, 보유활동을 평균자사주로 표준화하는 경우는 최소값이 -2이므로, 3을 더한 후 로그변환 하였다.

다음과 같이 해석해 볼 수 있다. <표 4>의 (10)을 보면 전반적으로 지배구조가 좋을수록 자사주 처분을 할 확률이 높았으나, <표 5>의 (10)을 해석해보면 지배구조가 좋을수록 상장주식수 대비 처분하는 자기주식수가 적어지는 것으로 나타난다. 이는 현실에서 충분히 예상 가능한 상황으로 지배구조가 좋은 기업은 주가 관리 등을 목적으로 (소량의) 자사주 거래를 활발히 할 수 있을 것으로 사료된다. 처분되는 자사주의 규모가 작은 경우는 일상적인 재무활동으로 경영권 방어 등 고착화(entrenchment) 현상과는 거리가 멀 수 있다.

반면 지배구조가 낙후된 기업은 자사주 처분을 할 가능성은 낮지만, 일단 처분하는 경우는 상대적으로 대규모의 처분을 한다고 해석할 수 있다. 이처럼 처분되는 자사주의 규모가 큰 경우, 예컨대 발행주식 총수의 일정비율 이상인 경우에는 우호세력에 대한 지분 매각 등 경영권 방어와 관련되었을 가능성이 상대적으로 더 높다고 볼 수 있다. 즉, 고빈도, 소규모 자사주 처분 보다는 저빈도, 대규모 자사주 처분이 경영권 방어와 더 관련이 있으며, 이는 지배구조가 낙후된 기업에서 더 활발히 일어난다는 해석이 가능하다. 추후 <표 8>에서는 이러한 직관을 더 직접적으로 검증하기 위해 처분되는 주식의 규모를 구간 별로 나누어 로짓 분석을 실시한다.

한편, 자사주 보유와 관련된 <표 4>와 <표 5>의 계수 추정치를 보면 지배구조가 안 좋은 기업은 자사주를 추가로 보유할 가능성은 높지만, 이 경우 상대적으로 소규모의 추가 보유를 한다고 해석할 수 있다. 이는 자사주를 소규모로 꾸준히 매입해서 축적해나가는 경향과 일치한다.

<표 5> 삽입

<표 6>에서는 기업들이 평균적으로 보유 중인 자사주 대비 상대적인 처분, 소각, 보유 활동을 분석하기 위해 자사주 활동 주식수를 <표 5>와 같이 상장주식수로 나누는 대신 평균 보유 자사주[=(기초+기말

자기주식수)/2]로 조정한 값을 사용하여 분석하였다.

<표 6>을 보면 <표 5> 에 비해 처분 및 보유 활동에 대한 지배구조 변수의 영향이 뚜렷하게 나타나지 않고 있는데, 이는 <표 5>에서 상장주식수로 조정한 자사주 활동 주식수와 <표 6>에서 평균 자사주로 조정한 자사주 활동 주식수가 내포하는 의미가 다르기 때문이다. <표 5>의 종속변수는 전체 주식수 대비 각 자사주 활동을 얼마나 활발히 하는지를 측정하는 반면, <표 6>의 종속 변수는 기존에 보유하고 있는 자사주에 대비했을 때 당해 기간 중 처분, 소각 등이 얼마나 활발히 일어나는지를 측정하고 있다. 즉, 지배구조 수준은 기존에 보유 중인 자사주를 얼마나 처분했는지에 대한 설명력은 약하지만, 상장주식수 대비 자사주 처분 규모는 비교적 잘 설명하는 것으로 보인다. 그런데, 경영권 방어와 관련되는 자사주 처분은 의결권 규모를 의미하는 상장주식수 대비 처분 자사주이므로, 이와 관련한 해석은 <표 6> 보다는 <표 5>의 결과에 의거하는 것이 보다 더 적절할 것으로 사료된다.

한편, 자사주 소각은 <표 5> 및 <표 6> 에서 공히 지배구조 수준과 양의 상관관계가 나타났다. 이는 지배구조가 양호한 기업이 상장주식수 대비 절대적인 소각도 더 많이 하고, 보유 자사주 대비 상대적인 소각도 더 많이 함을 의미한다.

<표 6> 삽입

4.2.3 자사주 처분 활동에 대한 단변량 분석

지금까지는 기존에 취득한 자사주를 어떻게 처분, 소각, 보유하는지에 대한 분석을 진행하였다. 이하에서는 경영권 방어 목적의 자사주 보유는 궁극적으로 대규모의 자사주 처분과 관련이 있을 것이라는 점에 착안하여 자사주 처분에 대한 분석을 보다 자세히 실시한다.

우선 <표 7>에서는 상장주식수 대비 자사주 처분 규모에 대한

단변량 분포를 제시하고 있다. <표 7>에서 보고하고 있듯이 대부분의 자사주 처분 사건은 전체 상장주식수 대비 소규모인 것을 알 수 있다. 그럼에도 불구하고 전체 상장주식의 5% 이상을 매각하는 대규모의 자사주 처분도 129건이나 되어 전체 처분 사건의 약 7%에 해당하는 것을 알 수 있다 이는 대규모의 자사주 처분이 존재하지만 그 빈도는 높지 않다는 것을 보여 주는 것으로 해석된다.

<표 7> 삽입

<그림 1> 에서는 자사주 처분 기업을 지배구조 점수 별로 총 10개 그룹으로 나누고, 각 그룹별로 처분되는 상장주식수 대비 자사주 규모의 평균 값을 보고하고 있다.[19] 그림에서 알 수 있듯이 지배구조 점수가 낮은 그룹에서 평균 자사주 처분 규모가 큰 경향을 보이고 있는데, 이는 경영권 방어와 연결될 수 있는 대규모의 자사주 처분은 지배구조가 낙후된 기업에서 일어날 개연성이 더 크다는 점을 시사한다.

<그림 1> 삽입

4.2.4 자사주 처분 활동에 대한 로짓 회귀분석

그 동안 재계에서는 국내 기업 관련 법제도상 경영권 방어 수단이 미국에 비해 미흡함을 꾸준히 지적해 왔다. 이에 따라 현행 제도상 활용 가능한 경영권 방어 수단은 현실적으로 자사주가 거의 유일하다는 게 관련 업계의 시각이다. 예컨대 한국경제신문(2015.6.11.)에 의하면 재계에서는 “경영권 방어 수단으로 효과를 기대할 수 있는 것은 자사주 취득 밖에 없다”고 한다. 기사에 따르면 “국내 기업이 경영권을 지키기 위해 사용할 수 있는 방어 수단은 자사주 취득과

[19] 대상 표본을 지배구조 점수 분포의 1%, 5%, 10%, 25%, 50%, 75%, 90%, 95%, 99%에서 구분하여 10개 그룹을 구성하였다.

신주의 제3자 배정, 초다수결의제, 황금낙하산 정도이지만, 자사주 취득 외에 다른 수단은 사실상 무력화돼 있다”고 한다. 실제로 2015년에 제일모직과의 합병을 앞둔 삼성물산은 우호지분 확보를 위해 보유중인 자사주 전량을 KCC에게 매각한 바 있으며, 법조계에서도 적대적 M&A에 대한 방어전략으로서의 자사주의 취득 및 처분을 강조하고 있다.

이하에서는 이와 같은 경영권 방어 목적을 위한 자사주의 처분이 실제로 존재한다면, 어떤 특성을 가진 기업에서 그러한 경향이 더 두드러지게 나타나는 지를 로짓 회귀분석을 통해 검증한다. 주요 설명 변수로는 기업지배구조 수준과, 각 하위 항목 (주주권리, 이사회, 공시, 감사, 주주환원)의 수준을 고려하며, 이외에 기업 규모, 수익성 등 다양한 기업특성을 통제한다. 지배구조 점수는 한국기업지배구조원에서 제공하는 원 점수 (300점 만점)를 300점으로 조정하여 표준화된 변환점수를 사용하였고, 기업특성변수는 3.2.3에 제시된 정의대로 구성하여 분석에 사용하였다.

동 분석을 위해 자사주 처분 활동을 세분화 하여 다음과 같이 더미 변수를 구성하였다. St1_5는 해당 년도에 처분되는 자기 주식수가 상장주식수 대비 1%이상 5% 미만이면 1 아니면 0을 부여하고, St5_10은 5%이상 10%미만이면 1 아니면 0을 부여하였다. 이와 유사하게 St_10은 10%이상이면 1 아니면 0을 부여하여 종속변수를 구성하였다. 경영권 방어와 관련이 있으려면 대규모의 자사주 처분이 있어야 할 것이므로 St_10가 주요 관심 변수라 할 수 있다.

본 분석의 결과는 <표 8>에 제시되어 있다. 우선 (7)의 결과에 따르면 지배구조가 좋은 기업은 자사주 처분을 할 경우 소량의 자사주 처분을 할 가능성이 더 높은 것으로 나타나는 데 이는 앞서 보고한 <표 4>의 (10) 로짓 분석과 일맥상통한다. 반면, (9)의 결과에 의하면 지배구조 수준과 10%이상 자사주 매각 간에는 부(-)의 관계를 보여주고 있으며, 지배구조 점수의 하위항목별로는 감사기구의 영향이 큰 것으로 나타났다. 즉, 상장주식수 대비 자사주 처분주식수가 10% 이상인 대규모

처분 건에 있어서는 지배구조가 낙후될 수록, 특히 감사 기구가 적절히 작동하지 않을수록 자사주를 처분할 확률이 높아지는 것으로 나타났는데, 이는 앞의 <표 5>의 (10) OLS 분석과 일치하는 결과이다. 통상 규모가 큰 자사주 처분은 경영권 방어 목적일 가능성이 높다. 즉, 지배구조가 안 좋을수록 대규모의 자사주 처분이 일어날 가능성이 높다는 실증분석 결과는 경영권 방어를 위해 자사주를 활용할 가능성을 뒷받침해주는 결과라고 할 수 있다.

한편 규모가 큰 기업일수록, 그리고 시가-장부비율이 낮은 기업일수록 대규모 자사주 처분을 하는 것으로 나타났다. 시가-장부비율이 낮은 기업은 현재 기업가치가 떨어져 있으므로 이를 해소하기 위한 M&A가 가능함에도 불구하고 경영권 방어를 위해 대규모 자사주 처분을 한다는 것은 대리인 문제의 발현으로 해석할 여지가 있다.

<표 8> 삽입

마지막으로 <표 9>에서는 상장주식수 대비 처분되는 자사주의 규모를 기준으로 전체 분석대상을 총 4개 그룹으로 나눈 후, 각 그룹별로 감사기구 점수의 평균과 중위수를 보고하고 있다. 표에서 알 수 있듯이 상장주식수 대비 10% 이상 대규모의 자사주 처분을 하는 기업들의 경우 감사기구 점수의 평균 및 중위수가 소규모의 자사주 처분을 하는 경우에 비해 더 낮게 나타나고 있다. 이는 <표 8>과 일치하는 결과로 여러 지배구조 관련 기능 중 특히 감사관련 기능이 취약할 경우 경영권 방어 목적의 자사주 처분을 통제하기 어렵다는 것으로 해석할 수 있다.

<표 9> 삽입

5. 결론

재무이론에서 자사주 취득은 주주환원정책의 일환으로 이해하는 것이 일반적이다. 즉, 취득된 자사주는 궁극적으로 소각을 통해 배당과 유사한 효과를 야기하는 것으로 인식되고 있고 대다수의 기존 연구도 이러한 방향에서 진행되었다.

그러나, 국내에서는 취득한 자사주 처분이 재무적 실질상으로는 신주 발행과 동일함에도 불구하고, 현행법상 이를 별도로 취급하여 주주평등의 원칙을 요구하지 않음으로써 기업 입장에서는 취득한 자사주를 추후 다양한 용도로 사용하고자 하는 인센티브가 존재한다. 대표적인 사례가 경영권 방어를 위한 보유 자사주의 제3자 매각과 인적분할 시 분할된 자회사 자사주를 모회사가 승계하도록 하는 관행이다.

본 연구에서는 자사주 처분에 대한 국내외 관련 제도 현황을 먼저 살펴 보고, 국내 기업들의 취득 자사주 처분, 소각, 및 보유 행위를 분석함으로써 최근에 진행되고 있는 상법 개정 동향에 대한 실증적인 논거를 제시하고자 하였다. 우선 국내와는 달리, 독일, 일본, 영국 등 해외에서는 자사주 처분에 있어서도 신주 발행과 유사 또는 동일하게 주주평등의 원칙이 적용되어 경영권 방어 목적의 제3자에 대한 자사주 매각은 일반적으로 허용되지 않음을 알 수 있었다. 반면, 국내 상법은 자사주 관련 광범한 자유를 인정함으로써 자사주가 주주환원 보다는 경영권 방어 목적으로 활용될 수 있는 여지를 열어 두고 있었다.

실증 분석 결과, 국내 기업은 자사주를 비교적 활발히 취득 및 처분하고 있으나, 실제 소각으로까지 이어지는 경우는 매우 예외적이었다. 기업특성 별로는 배당이 활발한 기업, 이사회 활동이 양호한 기업 등 지배구조가 우수한 기업에서 소각이 발생하는 경향이 발견되었다. 반면 지배구조가 낙후된 기업에서는 발행주식 총수의 10% 이상인 대규모의 자사주 매각이 발생하는 경향이 발견되어 경영권 방어와 밀접한 관계가 있음을 확인하였다. 이러한 결과는 최근 자사주의

제3자 매각 시에도 신주발행과 유사한 주주평등의 원칙을 적용하는 상법 개정안에 대해 실증적인 타당성을 제공한다는 측면에서 그 제도적, 실무적인 시사점이 있다.

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그림 1. 지배구조점수 별 평균 상장주식수 대비 처분자사주

이 그림은 2005년부터 2013년까지 유가증권시장에 상장된 기업 중 자사주 취득이 있었던 기업을 표본으로 추출하여, 자사주 취득 이후 처분되는 자사주의 규모를 상장주식수로 표준화한 후, 지배구조 점수별로 10개 그룹으로 나누고, 각 지배구조 그룹별로 상장주식수 대비 처분되는 자사주 규모의 평균 값을 보고하였다. 10 개 그룹은 대상 표본을 지배구조 점수 분포의 1%, 5%, 10%, 25%, 50%, 75%, 90%, 95%, 99%에서 구분하여 구성하였다.

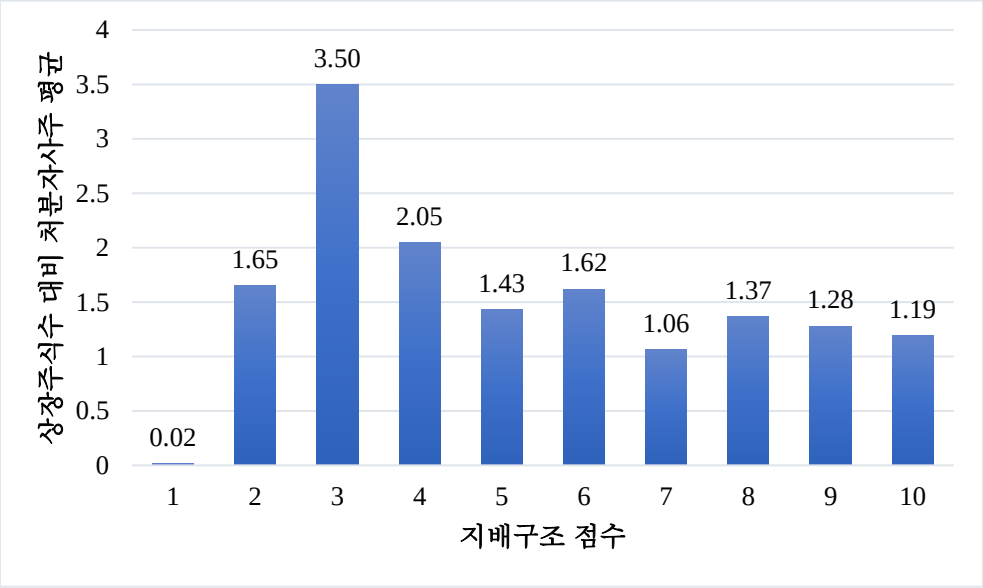

표 1. 자사주 취득, 처분, 소각 현황

[A]는 전체 유가증권상장 회사를 대상으로 기업의 자사주 취득, 처분, 소각 활동 현황을 기업수 및 전체 표본 대비 활동 비중으로 나타낸다. 전체표본은 유가증권 시장 전체 기업-연도이며 자사주 표본은 취득, 처분, 소각 활동이 한 번이라도 있었던 기업을 의미한다. 자사주 활동 비중은 전체 유가증권상장 회사에서 자사주 활동을 한 표본이 차지하는 비중이다. [B]는 취득, 처분, 소각 활동별로 각 활동이 있었던 표본만을 추출하여 표본수, 평균 활동비중, 상장주식수 대비 평균 활동비중, 평균 금액을 나타낸다. 활동 비중은 전체표본 대비 각 활동이 있었던 표본수의 비중을 나타내며 단위는 % 이다. 주식수의 단위는 천 주 이고, 상장주식수 대비 비중은 해당기간 동안 상장되어 있는 주식수 대비 활동 주식수로 나타내었으며 단위는 %이다. 금액은 주식수×종가로 계산하였고 단위는 억 원이다.

연도	[A]			[B]											
	전 체			취득				처분				소각			
	전체 표본	자사주 표본	자사주 활동 비중%	표본수	활동 비중 %	상장 주식수 대비%	금액	표본수	활동 비중 %	상장 주식수 대비%	금액	표본수	활동 비중 %	상장 주식수 대비%	금액
Total	**7,428**	**2,656**	35.8	**1,904**	**25.6**	**2.6**	**339**	**1,460**	**19.7**	**3.2**	**332**	**174**	**2.3**	**5.6**	**750**
2004	562	253	45.0	200	35.6	3.4	299	129	23.0	2.8	220	29	5.2	6.7	1,426
2005	599	233	38.9	123	20.5	2.2	522	167	27.9	2.6	185	19	3.2	3.1	214
2006	612	240	39.2	167	27.3	3.1	506	142	23.2	3.7	181	18	2.9	4.4	1,013
2007	620	262	42.3	188	30.3	2.0	479	155	25.0	2.8	607	18	2.9	4.1	470
2008	618	251	40.6	212	34.3	2.9	139	109	17.6	3.4	121	9	1.5	2.5	498
2009	519	204	39.3	156	30.1	3.1	208	130	25.0	4.3	353	11	2.1	3.6	471
2010	638	236	37.0	167	26.2	2.9	559	132	20.7	3.8	761	14	2.2	17.3	208
2011	640	223	34.8	158	24.7	2.2	209	118	18.4	4.4	422	13	2.0	5.0	628
2012	669	205	30.6	142	21.2	2.3	188	105	15.7	2.5	159	9	1.3	10.7	2,178
2013	665	197	29.6	133	20.0	2.4	188	109	16.4	2.9	366	11	1.7	1.9	223
2014	652	188	28.8	131	20.1	1.7	291	98	15.0	2.9	237	10	1.5	5.5	85
2015	634	164	25.9	127	20.0	1.9	543	66	10.4	2.0	255	13	2.1	2.6	1,128

표 2. 자사주 취득한 표본의 처분, 소각, 보유 현황

당해년도에 자사주 취득이 있었던 기업만을 추출하여 자사주의 취득, 처분, 소각, 보유(=기말자사주 - 기초자사주) 활동을 나타내며, 각 활동에 대해 금액, 각 자사주 활동의 주식수를 [1]상장주식수와 [2]평균주식수로 조정한 값의 평균, 1분위수, 중위수, 3분위수를 보여준다. 여기서 평균 자사주는 (기초 자기주식수 +기말 자기주식수)/2이다. 금액은 주식수×종가로 계산하였고, 단위는 억 원이다.

[4] 자사주 취득한 표본의 활동별 분포

	취득			처분			소각			보유		
	금액	[1]상장 주식수	[2]평균 자사주	금액	[1]상장 주식수	[2]평균 자사주	금액	[1]상장 주식수	[2]평균 자사주	금액	[1]상장 주식수	[2]평균 자사주
표본수	1,892	1,892	1,845	1,892	1,892	1,845	1,892	1,892	1,845	1,892	1,892	1,845
평균	341	0.026	16.152	157	0.013	15.335	62	0.004	0.309	121	0.009	0.508
25%	0.76	0.000	0.075	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
중위수	13.54	0.010	0.419	0	0.000	0.000	0	0.000	0.000	3.58	0.003	0.194
75%	81.00	0.031	1.856	9	0.004	0.119	0	0.000	0.000	39	0.019	1.351

표 3. 설명변수의 기초통계량

당해년도에 자사주 취득이 있었던 기업만을 추출하여 취득한 자사주를 처분, 소각, 보유 활동으로 구분하고, 해당 자사주 활동이 있었으면 1, 없었으면 0을 각각 부여하여 표본을 나누었다. 자사주 활동에 따른 기업특성 및 지배구조 설명변수의 평균과 중위수를 보여준다. 표본 기간은 지배구조 설명변수가 사용된 2005년부터 2013년까지이다.

		total		처분				소각				보유			
				[1]		[0]		[1]		[0]		[1]		[0]	
		평균	중위수	평균	중위수	평균	중위수	평균	중위수	평균	중위수	평균	중위수	평균	중위수
설명변수	Gov_total	115.580	110.000	120.66	113.000	112.154	108.000	123.819	110.000	114.984	110.000	112.35	108.000	119.680	113.000
	Shright	49.894	50.000	50.357	50.000	49.582	50.000	49.947	50.000	49.890	50.000	49.734	50.000	50.098	50.000
	Board	20.875	19.000	22.571	20.000	19.730	18.000	26.032	20.000	20.501	19.000	19.623	18.000	22.462	20.000
	Disclosure	20.181	18.000	21.905	20.000	19.018	17.000	22.404	19.000	20.020	18.000	19.041	17.000	21.626	19.000
	Audit	22.768	21.000	23.550	21.000	22.241	20.000	24.809	23.000	22.620	21.000	22.203	20.000	23.485	21.000
	Distribution	2.681	3.000	2.884	3.000	2.545	3.000	3.287	3.000	2.637	3.000	2.529	3.000	2.874	3.000
	Minus	0.928	0.000	0.607	0.000	1.145	0.000	2.872	0.000	0.787	0.000	0.952	0.000	0.897	0.000
	Size	26.929	26.67	27.18	26.89	26.77	26.54	26.99	26.54	26.92	26.67	26.78	26.55	27.11	26.84
	Cash	0.068	0.052	0.072	0.055	0.065	0.049	0.065	0.050	0.068	0.052	0.065	0.049	0.072	0.054
	Profitability	0.018	0.038	0.026	0.045	0.012	0.035	-0.045	0.040	0.023	0.038	0.020	0.035	0.015	0.043
	Dividend	0.009	0.005	0.011	0.006	0.008	0.004	0.012	0.006	0.009	0.005	0.008	0.005	0.010	0.006
	Lev	0.482	0.483	0.487	0.482	0.478	0.486	0.534	0.498	0.478	0.482	0.473	0.483	0.494	0.482
	MBratio	1.411	0.897	1.534	0.986	1.329	0.853	2.024	1.093	1.361	0.879	1.242	0.840	1.625	0.988
	표본수	1635		652		983		123		1512		914		721	

표 4. 자사주 활동에 대한 로짓 회귀분석

이 표는 2004년부터 2015년까지 유가증권시장에 상장된 기업 중 자사주 취득이 있었던 기업을 표본으로 추출하여, 자사주 활동의 여부를 결정하는 데 기업특성 및 지배구조가 어떠한 영향을 미치는지 분석한다. 자사주 취득 후 자사주 관련 활동을 처분, 소각, 보유(=기말자사주 - 기초자사주)로 구분하고, 종속변수는 각각 자사주를 처분했으면 1 아니면 0, 소각했으면 1 아니면 0, 보유했으면 1 아니면 0을 부여하였다. 독립변수는 지배구조 점수와 기업특성변수이며, 지배구조 점수는 총점과 세부항목 점수로 나누어져 있다. 연도더미를 포함했고, 괄호 ( )안은 t값 (t-value)의 값을 의미하며, ***, **, *는 각각 1%, 5%, 10% 수준에서 통계적으로 유의함을 나타낸다. (4)-(12)의 표본 기간은 지배구조 설명변수가 사용된 2005년부터 2013년까지이다.

	(1) 처분	(2) 소각	(3) 보유	(4) 처분	(5) 소각	(6) 보유	(7) 처분	(8) 소각	(9) 보유	(10) 처분	(11) 소각	(12) 보유
Gov_total										1.607*	6.261***	-1.606*
										(1.850)	(4.048)	(-1.858)
Shright				0.776	-2.525	0.688	0.646	-1.158	0.360			
				(0.378)	(-0.637)	(0.340)	(0.301)	(-0.278)	(0.170)			
Board				4.093	17.517***	-5.098*	2.970	20.024***	-3.922			
				(1.360)	(3.369)	(-1.695)	(0.945)	(3.642)	(-1.250)			
Disclosure				5.572**	-7.076*	-4.159*	3.973*	-1.086	-3.213			
				(2.559)	(-1.646)	(-1.927)	(1.700)	(-0.232)	(-1.384)			
Audit				-1.808	-1.859	1.321	-2.433	5.890	1.237			
				(-0.707)	(-0.370)	(0.522)	(-0.896)	(1.076)	(0.459)			
Distribution				11.406	33.543**	-15.086**	4.877	47.897***	-13.237			
				(1.470)	(2.265)	(-1.965)	(0.529)	(2.775)	(-1.451)			
Minus				-8.278*	17.450***	0.244	-7.897*	10.290**	1.631			
				(-1.952)	(3.785)	(0.066)	(-1.818)	(2.074)	(0.427)			
Size	0.119***	-0.000	-0.082***				0.065	-0.409***	-0.032	0.064	-0.302***	-0.045
	(3.883)	(-0.007)	(-2.718)				(1.211)	(-3.612)	(-0.603)	(1.273)	(-3.040)	(-0.892)
Cash	1.703**	0.103	-1.827**				2.006**	0.708	-2.115**	2.165**	0.217	-2.180**
	(2.110)	(0.067)	(-2.286)				(2.084)	(0.354)	(-2.203)	(2.269)	(0.109)	(-2.289)
Profitability	0.032	-0.865**	0.215				-0.133	-0.374	0.362	-0.022	-0.793**	0.342
	(0.117)	(-2.385)	(0.793)				(-0.445)	(-0.839)	(1.166)	(-0.077)	(-2.088)	(1.126)
Dividend	15.827***	19.423***	-15.576***				9.940	4.671	-7.336	11.937**	16.756**	-12.024**
	(3.653)	(3.082)	(-3.578)				(1.630)	(0.465)	(-1.203)	(2.244)	(2.027)	(-2.245)
Lev	0.426	1.607***	-0.790***				0.201	2.259***	-0.393	0.235	2.524***	-0.498
	(1.529)	(3.401)	(-2.881)				(0.584)	(3.319)	(-1.152)	(0.702)	(3.927)	(-1.500)
MBratio	-0.000	0.007	-0.014				-0.001	0.004	-0.018	-0.002	0.004	-0.015
	(-0.016)	(0.376)	(-0.741)				(-0.049)	(0.209)	(-0.818)	(-0.085)	(0.184)	(-0.754)
연도더미	포함	포함	포함	포함	포함	포함	포함	포함	포함	포함	포함	포함
Observations	1,889	1,889	1,889	1,390	1,390	1,390	1,389	1,389	1,389	1,389	1,389	1,389

표 5. 자사주 활동에 대한 OLS 회귀분석

이 표는 2004년부터 2015년까지 유가증권시장에 상장된 기업 중 자사주 취득이 있었던 기업을 표본으로 추출하여, 자사주 활동량을 결정하는 데 기업특성 및 지배구조가 어떠한 영향을 미치는지 분석한다. 자사주 취득 후 자사주관련 활동을 처분, 소각, 보유(=기말자사주-기초자사주)로 구분하고, 종속변수는 각 활동 주식수를 상장주식수로 조정한 후 1을 더하고 로그변환 한 값이다. 독립변수는 지배구조 점수와 기업특성변수이며, 지배구조 점수는 총점과 세부항목 점수로 나누어져 있다. 연도더미를 포함했고, 괄호 ( )안은 t값 (t-value)의 값을 의미하며, ***, **, *는 각각 1%, 5%, 10% 수준에서 통계적으로 유의함을 나타낸다. (4)-(12)의 표본 기간은 지배구조 설명변수가 사용된 2005년부터 2013년까지이다.

	(1) 처분	(2) 소각	(3) 보유	(4) 처분	(5) 소각	(6) 보유	(7) 처분	(8) 소각	(9) 보유	(10) 처분	(11) 소각	(12) 보유
Gov_total										-0.034*	0.026***	0.069*
										(-1.680)	(3.428)	(1.808)
Shright				-0.032	-0.029	0.085	-0.028	-0.018	0.067			
				(-0.687)	(-1.620)	(0.957)	(-0.566)	(-0.992)	(0.719)			
Board				0.080	0.029	-0.025	0.068	0.039	0.030			
				(1.163)	(1.096)	(-0.190)	(0.939)	(1.442)	(0.218)			
Disclosure				-0.069	0.019	0.011	-0.084	0.036*	0.088			
				(-1.361)	(0.980)	(0.112)	(-1.554)	(1.756)	(0.856)			
Audit				-0.059	0.004	-0.035	-0.088	0.019	0.035			
				(-1.008)	(0.178)	(-0.315)	(-1.409)	(0.811)	(0.298)			
Distribution				-0.110	0.329***	0.703**	-0.033	0.432***	0.564			
				(-0.616)	(4.843)	(2.063)	(-0.159)	(5.408)	(1.410)			
Minus				-0.037	0.014	-0.031	-0.018	-0.005	-0.101			
				(-0.433)	(0.429)	(-0.189)	(-0.208)	(-0.153)	(-0.605)			
Size	0.000	0.000	-0.002				0.002	-0.001**	-0.005*	0.002	-0.001*	-0.005**
	(0.615)	(0.695)	(-1.532)				(1.329)	(-2.070)	(-1.921)	(1.382)	(-1.746)	(-2.290)
Cash	0.019	0.001	-0.038				0.021	0.005	-0.059	0.020	0.003	-0.060
	(1.118)	(0.088)	(-1.194)				(0.965)	(0.556)	(-1.394)	(0.929)	(0.384)	(-1.433)
Profitability	-0.003	0.002	-0.007				-0.003	-0.001	-0.006	-0.004	-0.001	-0.004
	(-0.606)	(0.717)	(-0.648)				(-0.504)	(-0.465)	(-0.493)	(-0.542)	(-0.332)	(-0.331)
Dividend	-0.084	0.071*	0.310*				-0.119	-0.101*	0.209	-0.110	0.031	0.367
	(-0.957)	(1.750)	(1.865)				(-0.856)	(-1.927)	(0.792)	(-0.907)	(0.665)	(1.598)
Lev	-0.001	0.008***	-0.006				-0.003	0.005	0.001	-0.003	0.007**	0.001
	(-0.148)	(2.923)	(-0.587)				(-0.335)	(1.610)	(0.077)	(-0.366)	(2.305)	(0.072)
MBratio	-0.001*	-0.000	0.000				-0.001	-0.000	0.000	-0.001	-0.000	0.000
	(-1.744)	(-1.012)	(0.526)				(-1.520)	(-0.379)	(0.467)	(-1.559)	(-0.954)	(0.286)
연도더미	포함	포함	포함	포함	포함	포함	포함	포함	포함	포함	포함	포함
Observations	1,889	1,889	1,889	1,390	1,390	1,390	1,389	1,389	1,389	1,389	1,389	1,389
R-squared	0.016	0.016	0.009	0.014	0.031	0.007	0.019	0.040	0.013	0.017	0.018	0.011

표 6. 자사주 활동에 대한 OLS 회귀분석

이 표는 2004년부터 2015년까지 유가증권시장에 상장된 기업 중 자사주 취득이 있었던 기업을 표본으로 추출하여, 자사주 활동량을 결정하는 데 기업특성 및 지배구조가 어떠한 영향을 미치는지 분석한다. 자사주 취득 후 자사주관련 활동을 처분, 소각, 보유(=기말자사주-기초자사주)로 구분하고, 종속변수는 각 활동 주식수를 (기초자사주+기말자사주)/2 로 조정한 후 처분, 소각은 1을 더하고 보유는 3을 더한 후 로그변환 한 값이다. 독립변수는 지배구조 점수와 기업특성변수이며, 지배구조 점수는 총점과 세부항목 점수로 나누어져 있다. 연도더미를 포함했고, 괄호 ( )안은 t값 (t-value)의 값을 의미하며, ***, **, *는 각각 1%, 5%, 10% 수준에서 통계적으로 유의함을 나타낸다. (4)-(12)의 표본 기간은 지배구조 설명변수가 사용된 2005년부터 2013년까지이다

	(1) 처분	(2) 소각	(3) 보유	(4) 처분	(5) 소각	(6) 보유	(7) 처분	(8) 소각	(9) 보유	(10) 처분	(11) 소각	(12) 보유
Gov_total										0.020	0.278**	-0.148
										(0.079)	(2.246)	(-1.063)
Shright				-0.828	-0.304	-0.077	-0.543	-0.151	-0.297			
				(-1.375)	(-1.047)	(-0.235)	(-0.873)	(-0.500)	(-0.865)			
Board				0.042	0.355	0.017	-0.029	0.410	0.174			
				(0.048)	(0.836)	(0.036)	(-0.032)	(0.931)	(0.349)			
Disclosure				0.226	0.286	-0.583*	0.783	0.468	-0.528			
				(0.350)	(0.920)	(-1.659)	(1.142)	(1.402)	(-1.395)			
Audit				-0.610	0.107	0.028	0.096	0.292	0.073			
				(-0.802)	(0.291)	(0.067)	(0.120)	(0.749)	(0.166)			
Distribution				-1.600	2.177*	-0.780	-5.507**	3.671***	-1.358			
				(-0.690)	(1.948)	(-0.617)	(-1.994)	(2.730)	(-0.892)			
Minus				0.205	1.325**	-0.575	-1.051	0.950*	-0.422			
				(0.189)	(2.545)	(-0.977)	(-0.947)	(1.757)	(-0.689)			
Size	-0.013	0.004	-0.007				-0.029*	-0.010	-0.004	-0.020	-0.007	-0.002
	(-1.514)	(0.895)	(-1.309)				(-1.824)	(-1.323)	(-0.407)	(-1.383)	(-0.932)	(-0.213)
Cash	0.299	0.101	0.017				0.422	0.115	-0.132	0.464*	0.112	-0.144
	(1.270)	(0.842)	(0.129)				(1.500)	(0.839)	(-0.850)	(1.659)	(0.816)	(-0.930)
Profitability	-0.221***	-0.042	0.017				-0.301***	-0.047	0.022	-0.289***	-0.061	0.022
	(-2.912)	(-1.081)	(0.403)				(-3.576)	(-1.150)	(0.477)	(-3.515)	(-1.530)	(0.486)
Dividend	3.545***	0.510	-1.067				6.627***	-1.216	0.195	4.738***	0.005	-0.312
	(2.815)	(0.792)	(-1.505)				(3.580)	(-1.348)	(0.191)	(2.985)	(0.006)	(-0.357)
Lev	0.275***	0.127***	-0.121***				0.329***	0.070	-0.100*	0.334***	0.101**	-0.103*
	(3.417)	(3.101)	(-2.673)				(3.233)	(1.416)	(-1.790)	(3.372)	(2.094)	(-1.890)
MBratio	-0.005	-0.003	0.009*				-0.038***	0.002	0.003	-0.030**	-0.000	0.004
	(-0.608)	(-0.576)	(1.896)				(-2.941)	(0.366)	(0.463)	(-2.442)	(-0.021)	(0.593)
연도더미	포함	포함	포함	포함	포함	포함	포함	포함	포함	포함	포함	포함
Observations	1,842	1,842	1,842	1,355	1,355	1,355	1,354	1,354	1,354	1,354	1,354	1,354
R-squared	0.031	0.019	0.025	0.019	0.021	0.023	0.047	0.029	0.027	0.042	0.019	0.024

표 7. 자사주 처분 활동의 규모별 분포

이 표는 2004년부터 2015년까지 유가증권시장에 상장된 기업 중 자사주 취득이 있었던 기업을 표본으로 추출하여, 자사주 취득 이후 처분되는 자사주의 규모를 상장주식수로 표준화한 후 그 분포를 보고한다.

상장주식수 대비 처분 자사주	빈도수	백분율(%)
<0.5%	1,445	76.4
0.5% - 1%	83	4.4
1% - 2%	104	5.5
2% - 3%	50	2.6
3% - 4%	51	2.7
4% - 5%	30	1.6
5% - 10%	71	3.8
10% - 50%	51	2.7
> 50%	7	0.4
총 계	1,892	100

표 8. 자사주 처분 활동에 대한 로짓 회귀분석

자사주 취득 후 자사주관련 활동을 처분, 소각, 보유로 나누고 종속변수는 이 중 처분 활동만 보았다. St1_5는 처분주식수가 상장주식수 대비 1%이상 5% 미만이면 1 아니면 0 부여하고, St5_10은 5%이상 10%미만이면 1 아니면 0을 부여, St_10은 10%이상이면 1 아니면 0을 부여하여 종속변수를 구성하였다. 독립변수는 지배구조 점수와 기업특성변수이며, 지배구조 점수는 총점과 세부항목 점수로 나누어져 있다. 표본 기간은 지배구조 설명변수가 사용된 2005년부터 2013년까지이다.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	St1_5	St5_10	St_10	St1_5	St5_10	St_10	St1_5	St5_10	St_10
Gov_total							4.121***	2.452	-4.961*
							(3.334)	(1.086)	(-1.876)
Shright	8.356***	1.042	-6.123	6.852**	3.899	-5.879			
	(2.692)	(0.203)	(-1.143)	(2.125)	(0.730)	(-1.038)			
Board	5.012	-3.369	8.484	7.190	-1.446	7.389			
	(1.183)	(-0.411)	(1.032)	(1.638)	(-0.171)	(0.836)			
Disclosure	-2.776	0.758	-2.305	-0.005	3.699	3.416			
	(-0.861)	(0.132)	(-0.387)	(-0.001)	(0.592)	(0.505)			
Audit	0.320	-6.401	-15.587**	2.262	-1.525	-19.945***			
	(0.084)	(-0.960)	(-2.312)	(0.561)	(-0.217)	(-2.719)			
Distribution	21.833*	19.978	-16.538	9.353	45.881**	-23.745			
	(1.924)	(1.072)	(-0.796)	(0.677)	(2.057)	(-0.865)			
Minus	-4.920	-4.509	-4.456	-5.435	-12.464	1.921			
	(-0.695)	(-0.393)	(-0.421)	(-0.742)	(-0.976)	(0.177)			
Size				-0.129	-0.258*	0.254*	-0.158**	-0.297**	0.271**
				(-1.587)	(-1.814)	(1.778)	(-2.087)	(-2.264)	(1.965)
Cash				-0.308	4.590**	-0.143	-0.361	4.262**	0.746
				(-0.217)	(2.411)	(-0.054)	(-0.256)	(2.265)	(0.288)
Profitability				-0.110	-0.283	0.051	-0.129	0.047	0.185
				(-0.279)	(-0.436)	(0.066)	(-0.342)	(0.080)	(0.249)
Dividend				9.490	-19.946	-15.567	11.626	-2.520	-24.303
				(1.131)	(-1.065)	(-0.470)	(1.636)	(-0.175)	(-0.889)
Lev				-0.162	1.889**	-0.824	-0.244	1.724**	-0.514
				(-0.312)	(2.227)	(-0.912)	(-0.486)	(2.148)	(-0.599)
MBratio				-0.117	-0.011	-1.529***	-0.146*	-0.050	-1.344***
				(-1.302)	(-0.201)	(-3.579)	(-1.693)	(-0.506)	(-3.478)
연도더미	포함	포함	포함	포함	포함	포함	포함	포함	포함
Observations	1,390	1,390	1,390	1,389	1,389	1,389	1,389	1,389	1,389

표 9. 상장주식수 대비 자사주처분 그룹 별 감사기구 점수 분포

이 표는 2005년부터 2013년까지 유가증권시장에 상장된 기업 중 자사주 취득이 있었던 기업을 표본으로 추출하여, 자사주 취득 이후 처분되는 자사주의 규모를 상장주식수로 표준화한 후, 4개 그룹으로 나누고, 각 상장주식수 대비 처분 자사주 그룹별로 빈도수와 감사기구 점수의 평균과 중위수 값을 보고하였다.

상장주식수 대비 처분 자사주	빈도수	감사기구 점수	
		평균	중위수
< 1%	1,113	22.82	21
1% - 5%	173	23.94	22
5% - 10%	54	20.96	20
>= 10%	50	19.48	15
전 체	1,390	22.77	21

국문초록

기업재무에 관한 연구

이 논문은 공급사슬과 소유권 구조, 기업 성과에 대한 뇌물의 영향, 자사주 매입 및 처분 및 소각 등 기업 재무에 관한 3개의 소논문으로 구성되어 있다. 첫 번째 논문은 비즈니스 그룹 내 공급사슬이 계열사 간 소유권 구조에 미치는 영향을 조사한다. 이전 문헌은 수익성이 높은 회사가 피라미드 구조의 최상위에 있다고 제시하고 있지만, 본 논문에서는 수익성이 내생적으로 결정될 수 있음을 보여준다. 특히 비즈니스 그룹 내의 공급업체는 계열사와의 독점 판매 계약을 통해 더 높은 수익을 창출할 수 있다. 따라서 본 논문에서는 한국의 대규모 기업집단 표본을 기반으로, 공급업체가 피라미드의 상단에 있을 가능성이 더 높다는 것을 실증적으로 보여준다. 이 결과는 상대적으로 작은 그룹 (총 자산 10 조 원 미만)에서는 두드러지지만 상위 5 개 비즈니스 그룹에서는 나타나지 않는다. 이는 역동적인 비즈니스 그룹 형성의 증거를 제시할 뿐 아니라, 일감몰아주기와 같은 회사 기회 유용의 인센티브가 비즈니스 그룹의 소유구조를 구성하는 데 중요한 요소가 될 수 있음을 시사한다.

두 번째 논문은 준 자연적 실험을 통해 뇌물이 회사 성과에 어떤 영향을 미칠 수 있는지 분석한다. 2016 년에 공공 부문 직원에게 선물 및 향응을 제공하는 것을 제한하는 부정청탁 및 금품 등 수수의 금지에 관한 법률이 제정되었는데, 이 법을 뇌물 수수에 대한 외생적 충격으로 활용하여 분석을 진행한다. 산업 수준에서 측정된 정부 노출정도를 도구변수화 하여 분석한 결과 기업의 뇌물 수수 활동은 성과에 부정적인 영향을 미친다는 결과를 얻었다. 특히, 법 시행 이후 예상되는 뇌물 수수 활동의 감소는 기업의 운영 성과를 크게 향상시키는 것으로 나타났다.

전반적으로, 본 논문의 연구 결과는 뇌물 수수가 회사의 가치를 손상 시킨다는 확실한 증거를 제공한다.

세번째 논문은 자사주의 처분과 관련한 국내외 사례 및 제도를 살펴보고, 국내 기업들이 자사주를 취득한 이후 이를 어떻게 처분하고 소각하는 지를 실증적으로 분석하였다. 자사주에 대한 기존 연구는 주로 '취득'에 초점을 두고 있어 취득 이후의 처분(재매각) 또는 소각 행위에 대한 실증 연구는 거의 없었다. 분석 결과 국내 기업들은 취득한 자사주의 대부분을 소각하지 않고 보유하거나 재매각 하는 경향이 있음을 발견할 수 있었다. 주요 통제변수들을 포함한 회귀 분석 결과, 기업지배구조가 양호한 기업들의 경우는 그렇지 않은 기업들에 비해 취득한 자사주를 소각하는 경향이 더 두드러졌다. 반면, 기업지배구조 수준과 자사주 처분 규모간에는 부(−)의 관계가 발견되었는데, 이는 매각되는 자사주가 발행주식 총수의 10% 이상인 경우, 즉 경영권 방어와 밀접한 관계가 있는 것으로 추정되는 경우에 더욱 명확하게 나타났다. 이러한 연구 결과는 자사주가 기존 지배주주의 경영권 보호를 위해 활용되고 있음을 실증적으로 보여 줌으로써 최근 논의 중인 상법 개정안에 대한 정책적 시사점을 제시한다.

주요어: 공급 사슬, 소유 구조, 뇌물, 청탁금지법, 기업 성과, 자사주
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